Febraury 2016 ● Rs. 150 (Total 164 pages)



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# **EXCLUSIVE TESTS**

DJI Osmo **Canon EOS M3** Sony Cyber-shot RX10 II

# **IMAGES FROM THE FINAL FRONTIER**

Drop your jaws... science meets art in a visual odyssey that is out of this world

# **ON ASSIGNMENT**

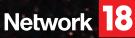
Sebastien Lebrigand flies planes around the moon... or does he?

Stories of the pioneers of astrophotography

How would you interpret the colour red visually?

# **CELLPHONE TECHNIQUE**

Nightskies on a cellphone... we tell you how to do it!



# Photography

# EDITORIAL

"What you capture is not measured in milliseconds and finite space, but often in hours, years, and light years. And it could be from hundreds of years in the past."



# Thinking Space and Deep Space

As a child, I learned that the haunting, hypnotic wails emanating from the empty frequencies on the old radio set in the living room was a symphony performed by the Earth, solar system, and the cosmos. I would spend hours, carefully turning the dials, listening to the 'tweeks', whistlers and sferics, as they are called. A while later, I also discovered that some of the snow, static and hiss on empty TV screens (the time of black and white television, when a terrace antenna was required to receive a good signal) were from outer space. It was not as fascinating as the radio, but it made me wonder what was out there.

Television also brought Gene Roddenberry's *Star Trek*, and *Star Wars* hit movie theaters. Every time Captain James T Kirk would give the command to 'engage' the warp drive of the USS Enterprise, turning starfields into impossible streaks of light, my schoolboy fantasies flew with him. I would explore strange new worlds, and boldly go where no man had gone before. Later, Arthur C Clarke's eerily detailed descriptions in his 1968 sci-fi book 2001: *A Space Odyssey*, and Stanley Kubrick's fantastic visualisation brought me closer home, to Saturn and Iapetus, Jupiter and Europa. On September 10, 2007, to mark the Cassini spacecraft's flyby just 1000 kilometers off Iapetus (Iapetus was discovered by Giovanni Cassini in 1671), 90-year-old Arthur C Clarke recorded a video greeting to NASA, from his home in Sri Lanka. "When Cassini was launched, we knew of only 18 moons. I understand it is now 60, and counting. I can't resist the temptation to say: My God, it's full of moons!" he said, referring to a famous dialogue from his book. How strange it is to find that reality is not all that far from fiction. Of course, there could be no sound in space, as belted out by the audio tracks in the movies. Yet, my radio at home sang the tune of the stars.

The coming of photography changed a lot of things. For one, the limits of a viewfinder made me more of a realist (in some ways) and I started thinking in terms of fractions of a second. Astrophotography differs in the conventional use of the medium in two important ways. Firstly, what you capture is not measured in milliseconds and finite space, but often in hours, years, and light years. And it could be from hundreds of years in the past. Second, you need at least a couple of years of dedicated learning, very careful adherence to technique, and a lot of attention to detail before you manage to make a passable image with an understanding of what you have captured. For most of us regular photographers, it is easy enough to snap away the minute we lift a camera from its box. But then again, it takes years to master ways of seeing, and to develop a language of visual expression.

Putting this issue together opened the eyes of the **BP** team to what exists beyond. We hope you enjoy it too.





Rhea, Rings and Shadow from the Cassini Missions, taken on May 8, 2010, by NASA/JPL **Space Science Institute** Saturn's moon Rhea (1,528km across) is gently lit in front of a background of the planet with a wide shadow cast by the rings. which are seen nearly edge-on. This view looks toward the anti-Saturn side of Rhea and toward the northern, sunlit side of the rings from just above the ringplane.

For a gallery of amazing art photographs from the most enigmatic planet from our solar system, 'Cassini's Magnum Opus' —Turn to page 84



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- Participate in the relavant contests on the page.
   There will always be a contest open for you to take part in!
- For Reader's Gallery contests, make sure the images have been made using a cellphone
- For Reader's Tip and Your Pictures contests, include a 100-word note on how and why you shot the image
- Winners of all the contests get featured on our website and can be featured in the magazine too. They will also receive special prizes!

# Send in a synopsis, with low-resolution images for viewing, to contribute articles to the following sections:

On Assignment, Step-by-Step, Photofeature, Tips & Tricks, Shooting Technique, History, Story Behind the Picture

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- To contribute articles and for questions on photography: editor@betterphotography.in
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and International
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DESIGN: SANTOSH D KAMBLE

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The First Stargazers of Our Time

Meet the 12 pioneers who paved the way for astrophotography today.

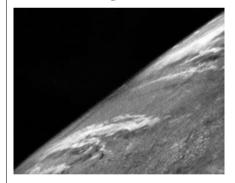
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# Feedback

Send your suggestions, thoughts, and feedback letters to... feedback@betterphotography.in
Every month, the 'Letter of the Month' will win a special gift from



**Building Connections** 

"It's essential for photographers to move away from the boundaries set by various genres, and look at other ways of photographing the same subject matter."



# **Expanding Your Horizon**

The January 2016 issue of Better Photography had quite a distinctive cover. With the words food photography on one side and the remnants of must have been a glorious birthday cake on the other, made me curious enough to turn the pages and unravel the connection between the two.

To be honest, I did not know that shooting decaying food was an art form. I was quite impressed with the amount of effort put in by Klaus Pichler into not just beautifully photographing the food, but also delving deep and finding a connection between the transportation of food and its wastage. To me, it meant that the images weren't simply made to shock, but to make its viewers more informed.

I am glad that **BP** decided to take an unusual approach to food photography. I think it's important for photographers to widen their vision and look into exploring other aspects of the genre.

Rahul Sen, Mumbai

# **Great Street Photography Issue!**

The December 2015 issue on street photography was an excellent one. Living in a rich and diverse country like India, one will never experience a dull moment when stepping out of the house. Moreover, I enjoy the unpredictability surrounding the genre, and which translated into the photographs featured in the magazine as well. It makes the genre that much more exciting and challenging. Heartiest thanks to Better Photography for coming out with such a wonderful issue.

Srinath H R, Bengaluru

I enjoy street photography a lot, but I often find myself in situations where I find it hard to approach the subject, let alone, lift up my camera and point it at their direction. But with time, I have noticed that the more I frequent a place, the more accustomed the people become of my presence.

An example that I would like to mention are my frequent trips to Mumbai's beaches. The first few times that I visited the place, I remember how hesitant and untrusting the caretakers of the beach horses were. They felt that I had come to photograph the physical state of their horses and then have them published in the newspaper. When I learned about this, I smiled and assured them that I am just a student of photography. Although they appeared less doubtful after this, I could still sense a slither of apprehension.

All of this changed when one day, I decided to take prints of the photographs that I had shot of their animals. I am glad that I did it because the caretakers were very delighted. More than anything, they were touched that someone took the time and effort to print photographs of the very thing that made up their livelihood. It is from this instance that I realised the importance of building relationships with the people that I put in front of my lens.

Ranjhana Chowdhury, Mumbai

The January 2016 edition of the magazine featured an article on 12 creative photographic projects to keep you occupied through the year.

on food photography.

Third series was a part of

the January 2016 special

# **Projects to Keep Me Occupied**

For someone who has just been introduced to photography, the January 2016 article on '12 Creative Projects You Can Undertake This Year', provided me with ample amount

FEBRUARY 2016



BETTER PHOTOGRAPHY

# **What Walker Evans Taught Me**

Despite having an ardent interest in street photography, I had never heard about Walker Evans, until I read BP's December 2015 issue. After reading the article, I was eager to learn more about the events that went into making the man who Evans was.

After reading Belinda Rathbone's biography on the photographer, I was left feeling rejuvenated. If there is a boundary for what's possible and impossible, one would find Evans in the latter. It was this aspect that I was drawn to, and appreciated the most about the photographer. I also enjoyed the fact that Evans found beauty in the ordinary. It made me realise that a street photograph can be straightforward and simple, and does not necessarily have to depict the moment when various moments converge together.

Another lesson I learned was the insignificance of the medium. For instance, it does not matter what camera or technique you use to shoot the photograph. What matters is your interpretation of how the subject has inspired or moved you to shoot that image. Evans equated this to writing. "Anybody can sit down and write something. But not everybody can sit down and write something that's worth writing."

But most importantly, the best advice I received from the book was doing what you love. Despite being pressed for money, Evans avoided doing most commercial assingments, and only took up work that he felt deeply for.

Rosa Gomes, Goa



We believe that the joy of a family photo is in displaying it. To make your special memories stand out, this Letter of the Month wins a special Photo Frame from Red Moments!



"Are we creating a cynical atmosphere, where emerging photographers are finding it hard to showcase projects that may not adhere to everyone's liking?"

of inspiration that will keep me occupied through the year. Moreover, I like that the projects are doable and not technical in nature. But more importantly, they are cellphone oriented and do not depend on the usage of high-end cameras. I hope that **BP** continues to come up with such articles and may be even make it a regular feature. **Jessica D'souza**, *Mumbai* 

# **Are We Being Too Critical?**

Recently, I came across an article where a Hungarian journalist Boglarka Balogh, received severe criticism for a project where she sort of transferred her facial features on to the faces of African women, belonging to seven different tribes. The internet severely criticised her for promoting blackface, when her actual intention was to promote the beauty of the tribes, and also highlight the fact that they are quickly disappearing.

When I first saw the images, I found them to be very beautiful, and in no way racist in nature. However, after scrolling through the article and the comments, I began to wonder why the journalist decided to transform herself into the tribal women.

Even though Balogh received a fair share of comments supporting her work, the

intensity of the backlash eventually led her to pull down her project, which I think was completely unnecessary. I just wish she had a more concrete explanation for using herself as the subject matter.

I also sometimes wonder if we as viewers are being too contemptuous about every single aspect in a photograph or series, thus creating a cynical atmosphere, and making it that much harder for new projects to come about. I think we need to give this a thought. **Anushka Khanna**, *New Delhi* 

• In January, Boglarka Balogh's photographs of African women recieved severe criticism, so much so that she had to take down the project.

















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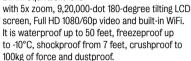
FEBRUARY 2016

# SnapShots

# WHAT'S NEW

# Olympus Stylus Tough TG-870

The rugged compact camera features a 21mm equivalent lens





# Five New Cameras from Canon

A trio of PowerShot IXUS cameras are the latest entry-level compact cameras

from Canon. The IXUS 285 HS features a 20.2MP BSI CMOS sensor and a 25–300mm equivalent lens, the IXUS 180 has a 20MP CCD sensor with a 24–240mm equivalent lens and the IXUS 175 also features a 20MP CCD sensor with a 28–224mm equivalent lens, without OIS. In the mid-range superzoom lineup are the 20MP PowerShot SX540 and SX420. The former features a BSI CMOS sensor, DIGIC 6 processor and 1080/60p video, while the latter has a CCD sensor and a DIGIC 4 processor.

# Fujifilm FinePix XP90

The camera is shockproof up to 6 feet and waterproof up to a depth of 50 feet and freezeproof up to -10°C. It features a 16.4MP CMOs sensor, 5x optical zoom and



28 mm wide-angle lens. It can shoot Full HD 1080p videos and  $360^\circ$  panorama pictures.

# Nikon KeyMission 360

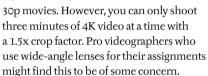
Nikon has entered the action camera segment with the release of the KeyMission 360. The spherical 360° camera is waterproof up to 100 feet, dustproof and shockproof up to 6.6 feet. It offers 4K UHD

recording and has an image sensor and lens on opposite sides of the device to create immersive stills and video.



# Nikon Announces Two Giants—The D5 and the D500

The D5 features an all-new 20.8MP FX format CMOS sensor with Nikon's Expeed 5 image processor. The new processor, for its part, will act as an enabler for the camera's video functionality, as the D5 can shoot 4K UHD



The other significant upgrade in the D5 is its new AF system, with a whopping 153 AF points, of which 99 are cross-sensor types. The D4s had just 51 AF points, of which 15 were cross-sensor types. The centre focus point has a detection range beginning at -4EV, while the other ones begin at -3EV, which makes sense, considering the extreme high ISOs that the camera can shoot at. The native ISOs now range from 100-1,02,400, expandable from ISO 50-32,80,000 which sounds like a formidable low-light performer. The D5 is capable of shooting at 12fps bursts with AF and 14fps with mirror lock-up. Interestingly, the D5 is also the world's first pro DSLR to have a touchscreen. After the criticism received by the D4S of including one CF and one XQD slot, the D5 changes things with two variants-one which uses dual CF cards and the other, which uses dual XQD cards. One can also switch between the two as the memory card module is a removable unit.





The two new Nikon flagships—the D5 on the left and the D500 on the right

Just like we saw with the D3 and D300 launched together in 2008, the D500, too, is the APS-C version of the D5.

This 20.9MP camera features the same AF system as the one in the D5, but since it's on a crop sensor, the coverage range extends almost to the edge of the frame.

The camera has the same EXPEED 5 processor as in the D5 and is capable of shooting at 10fps with a 200 shot RAW buffer. Moreover, you can also make 4k UHD 30p movies for a duration of 29 minutes with it. The ISO ranges from 100–51200, expandable to 50–16,40,000.

The D500 comes with dual card slots, one for XQD and the other for SD cards. Strangely, unlike its previously held philosophy with cameras like the D700, D800 and D300, the D500 will have no inbuilt flash. A pathbreaking feature of the D500 is the proprietary SnapBridge technology, which allows you to transfer images wirelessly with the use of Bluetooth. This is an always-on technology that apparently makes transfers nearly instantaneous. The SRP of the D5 is USD 6499.95 (approx. Rs. 4,40,300) while the D500 is USD 1999.95 (approx. Rs. 1,35,500).



No place is boring, if you've had a good night's sleep and have a pocket full of unexposed film.

# ROBERT ADAMS (1937)

Nature and architecture photographer, Robert Adams, is best known for his works on the evolving landscapes of Western United States. He began his career as a professor of English literature, but soon realised his passion lay in photography, and he took up the art in the mid-1970s. His book *The New West* (1974) brought his photographic prowess to the limelight, which was later also exhibited in 1975. Some of his other publications include *From the Missouri West, Notes for Friends* and *The Place We Live In.* He is a two-time recipient of a Guggenheim Fellowship, and he was given the Hasselblad Award in 2009. In 2014, he was elected to the American Academy of Arts and Letters.





mage Source: Fraenkel Gallery

BETTER PHOTOGRAPHY | FEBRUARY 2016

# WHAT'S NEW

# Fuiifilm XF 100-400mm f/4.5-5.6 OIS



The weather-sealed lens is equivalent to 152-609mm when mounted on an X-series camera body. It uses 21 elements in 14 groups and five ED elements and one super extra low dispersion elements. It has nine rounded aperture blades with

a 5-stop image stabilisation system and twin linear motors.

# Nikon's New 18-55mm Lenses

For the first time, the company is incorporating stepping motors to its DSLR lens lineup with two new AF-P lenses. Both are 18-55mm lenses, one with vibration reduction and the other without.



# **Tamron's New Lenses for Sony Mount**

The Tamron 18-200mm lens features 16 elements in 14 groups and seven aperture blades. It weighs in at 400g and is priced at Rs. 17,900. The Tamron 15-30mm is an ultra-wide zoom full frame lens featuring 18 elements in 13 groups and nine aperture blades. The lens is priced at Rs. 79,990. Both lenses do not include VC, since Sony DSLRs incorporate built-in image stabilisation.

# Nikon SB-5000



This is the company's new flagship flash unit. It is able to operate and trigger via radio frequency, a first for Nikon's lineup of Speedlights. When paired with the WR-R10 Wireless Remote Adapter set and either the D5 or D500, the flash can

operate without a direct line of sight range of up to approximately 98 feet. It can also control up to six groups or 18 Speedlights. The flash unit includes its own internal cooling system and can fire up to 120 continuous shots at 5 second intervals. The flash head capable of tilting down to -7° or up to 90°, and rotate horizontally 180° to the left and right. It is priced at USD 599.95 (approx. Rs. 40,600).

# **New XQD and SD Cards from Sony**

The XQD-M series provide read speeds of up to 440MB/s and write speeds of 100MB/s, and is available in 32, 64 and 128GB variants. The new SF-M series are UHS-II supported cards with write speeds up to 260MB/s and read speeds of 100MB/s. Both these series of cards are dustproof, X-ray proof, anti-static and magnet proof.

### Samsung 2TB Portable SSD T3



The storage device measures in at 74 x 58 x 10.5mm and is smaller than an average business card. It offers read

and write speeds of up to 450MB/s via its USB 3.1 Type C interface. It has a shock resistant case which can withstand 1500G of force.

# **Kolkata Hosts Instagram's First Indian Exhibition**

Tamaste, Instagram! From 7-9 January 2016, Kolkata played host to the country's first-ever exhibition by Instagram, with the theme Bengal's Diversity in Pictures. The images are sourced from 17 local Instagrammers, who capture the myriad stories from the east Indian state. The images were exhibited at the Indian Council for Cultural Relations.

Curated with the help of the community, Calcutta Instagrammers, the exhibition featured works by photographers like Ronny Sen, Supriyo Ranjan Sarkar and

Reuters photographer Anindito Mukherjee. Instagram's first exhibit had occurred in New York in 2014.



Sen (@ronnysen)

image of Japanese martial arts specialist Akiko Kitamura.

One of the exhibited photogs, Ronny Sen, had made this

# Fujifilm Announces Three New X-Series Cameras

he X-Pro 2 comes with a 24.3MP X-Trans CMOS III sensor, which is the highest resolution offered by a Fujifilm camera so far. Plus, it features 8fps continuous shooting and a hybrid AF system of 273 points, of which 77 are phase-detect and cover 40% of the frame. It also features a brand new 2.36 million dots hybrid viewfinder (OVF + EVF). It is priced at USD 1700 (approx. Rs. 1,16,000).

The 16.3MP X-E2S offers an updated 49-point Single Point AF mode and new Zone and Wide/Tracking modes with a 77-point area. It also has an electronic shutter, allowing shutterspeeds up to 1/32000sec. The body is priced at USD 699 (approx. Rs. 47,400).

The X70 is a 16.3MP fixed-lens APS-C camera with a 28mm equivalent f/2.8 lens, featuring a 3-inch articulated touchscreen LCD screen, a first by Fujifilm. It does not have a pop-up flash or viewfinder. A potential competitor of the Ricoh GR II, it is priced at USD 699 (approx. Rs. 47.400).







The new X-series offerings from Fujifilm—the X70, the X-E2S and the X-Pro 2

# Wildlife Photographer Rakesh Sahai Passes Away

n 1 January 2016, Delhi-based wildlife photographer Rakesh Sahai passed

away due to a heart attack. He breathed his last at Pench National Park in Madhya Pradesh. A passionate nature lover, the photographer had been pursuing the art for over two decades, and he was known for his flora and fauna photographs from Western and Central Himalayas.

He was extremely skilled at spotting birds and had the inherent skill of knowing where

> an animal would come to rest. He was involved with several NGOs, and also established the group Teens for Tigers for children.

He is survived by his wife, Ritu Sarin, Executive Editor (News and Investigation), The Indian Express and daughter, Rashi.



BETTER PHOTOGRAPHY FEBRUARY 2016

# 11–31 January 2016 Following the Box Indira Gandhi National Centre for the

The exhibition represents the works of 12 contemporary artists, inspired by vintage photographs under the project Following the Box: An artistic exploration of an archive of anonymous photographs from India. The project was done in collaboration with Alan Teller and Jerri Zbiral from The Collected Image, USA.

# 20 January–20 February 2016 Five Planets Align

Over the course of 30 days, Mercury, Venus, Mars, Jupiter and Saturn will align and will be visible at once with the naked eye. This rare phenomena is occurring after 11 whole years. This is a great opportunity for those who are interested in astrophotography.

### 29 January–4 February 2016 Nature and Wildlife of India

Jehangir Art Gallery, Mumbai Photographers Kanan Bhuta and Karlette Joseph are exhibiting their wildlife photographs at Jehangir Art Gallery in Mumbai. The photographs are a collection of wildlife and nature images shot from their various travels.

### 5-8 February 2016 DPC Photobus to Kila Raipur

Delhi Photography Club, New Delhi Delhi Photography Club is organising a photography trip to Kila Raipur Sports Festival, popularly known as the Rural Olympics.

# **PRO TALK**

Artifacts are distortions that occur in an image due to compression or interpolation. Some artifacts that are observed in images include chromatic aberrations, moiré, noise and halation.

# More Selfie-Related Deaths in India than Anywhere Else in the World, According to *The Washington Post*

In a country whose Prime Minster himself is so selfie-savy, you would expect its citizens to be as serious about the art. However, we have some bad news. According to a report by *The Washington Post*, India has been named the country with the most amount of selfie-related deaths than any other in the world. In 2015 alone, of the 27 reported selfie-related deaths, more than half occurred in the country.

Some of these deaths include those of three students who died trying to take a selfie close to a speeding train in January 2015, the death of seven youths in Nagpur, who drowned as their boat tipped over while shooting a selfie and in November 2015, when two youngsters trying to take a selfie died by slipping down the bank of Narmada canal in Gujarat.

Only last month, news of three young girls being swept out to the Arabian Sea while shooting a selfie came from Bandra, Mumbai. A local fisherman jumped in to save them, rescuing two, but tragically passed away himself. Post the incident, Mumbai police demarcated several "No Selfie Zones" to discourage people from shooting photos in potentially risky areas.

# Panasonic's New 1-inch Sensor Compact Superzoom!

During CES 2016, Panasonic announced the release of two new cameras—the Lumix DMC-TZ100 and DMC-TZ80.

First up is the TZ100, the first compact superzoom camera to feature a 1-inch type MOS sensor, which is used in conjunction with Panasonic's Venus engine. It comes a 25–250mm equivalent 10x zoom lens, which all fits into a very small body. In addition, the camera allows you to shoot 4K video at 24 and 30fps. Moreover, users can extract 8MP stills from 4K videos as well. The camera can shoot at 10fps in burst mode at full resolution and 5fps with AF.

The TZ100 also features an in-built viewfinder and a 3-inch 1040k dot



touchscreen. It is expected to retail at a price of USD 699 (approx. Rs. 47,400).

On the other hand, the TZ80 arrives as a replacement to the TZ70. The camera features an 1/2.3-inch 18MP MOS sensor along with a 30x (24–720mm in 35mm parlance) zoom lens with a maximum aperture range of f/3.3-6.4. It is expected to retail at USD 449 (approx. Rs. 30,400).

# Facebook Nudity Day Against Censorship of Art

ast month on 14 January, Art historian IKathy Schnapper and artists Stephen Pusey and Grace Graupe-Pillard launched Facebook Nudity Day to protest against the censorship of artists, curators and critics who had been censored on Facebook for their depictions of the nude human body.

Several thousand images flooded Facebook that day with the hashtag #FBNudity to protest the arbitrary censorship law of the social media website.

# **New Year Picture Goes Viral for Great Composition**

During New Year celebrations this year, photographer Joel Goodman was making images of the revelers in Manchester. Soon, he saw a drunken brawl erupt, where police officers were pinning down a man, while another in the background casually reclined on the street to reach his drink. As soon as he uploaded the photo on the internet, it went viral, owing to the seemingly perfect composition of the frame. It was also soon discovered that the image fit perfectly into the Golden Ratio, and it was also illustrated using the same.



Many took the photo further and remixed it as watercolour paintings. Goodman said that he was flattered by all the attention received by the image.

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## 15-18 February 2016 Vintage Photographic **Processes**

National Centre for the Performing Arts. Mumbai

National Centre for the Performing Arts is organising workshops by Aditya Arya that showcase various vintage photographic processes like cyanotype prints, albumen prints, salt paper prints, negatives and wet plate collodion. The participants will be able to learn the basics of all these processes. and make at least one print/glass plate negative of each technique. The price of the workshop is Rs. 9000 for early bird registrations. To register yourself. call +919810009099 / +919373091314 or visit www.indiaphotoarchive.org

# 26 February-13 March 2016 Chennai Photo **Biennale**

Jointly organised by Goethe-Institut and Chennai-based photographer Varun Gunta under his organisation Travelling Lens, the biennale is the first of its kind to happen in Chennai. It will be host to four major projects-Urban Water, a two-week workshop on water conservation; Surreal by Nature, an exhibit curated by Yannick Cormier, which explores the blurring of reality and poetry through the eyes of 10 renowned artists; Remembering Chandralekha, a largeformat open air photo exhibition spanning 20 vears of the legendary dancer Chandralekha and Selected Works from Delhi Photo Festival. Plus, artist talks from Pablo Bartholomew, Nayantara Gurung Kakshapati, Philip Blenkinsop, Walter Astrada, Denis Dailleux and Navroze Contractor are also lined up.

# PRO TALK

Blowout occurs due to overexposure, which results in a complete loss of highlight details.

# Leila Alaoui Passes Away in Terrorist Attack

Trench-Moroccan photographer Leila Alaoui passed away on 18 January 2016,

after an attack by the terrorist organisation al-Qaeda in Burkina Faso, West Africa. She was only 33 vears of age.

She was in the country on

assignment from Amnesty International, where she was working on a series of photographs which focused on

women's rights. She was at the Cappuccino Cafe in the capital, Ouagadougou, on

Friday, when the attack occurred. She was shot in the leg and thorax. She underwent

a six-hour-long operation, but she unfortunately succumbed to her injuries. She had studied photography at City University of New York, after which she spent time photographing in Morocco and Lebanon. Leila's work has been exhibited internationally since 2009,

including at the Maison Européenne de la Photographie in Paris.

# **Call for Entries**



• You could win above Rs. 1,70,000 at the IPOTY 2015 contest.

### International Photographer of the Year 2015

The Competition: IPOTY is a contest aimed at showcasing the best photographic work from photographers from around the world. The annual contest is open to every photographer, amateurs and professionals alike who is above 18 years of age. Categories: Professional and Amateur

Entry Fee: USD 15 (approx. Rs. 1000) for amateurs and USD 20 (approx. Rs. 1400) for professionals

Prizes: The winner of the professional category will take home the title of International Photographer of the Year along with a USD 2500 (approx. Rs. 1,70,000) cash prize. The amateur category winner will get the title of International Discovery of the Year along with a USD 1500 (approx. Rs. 1,00,000) cash prize.

Website: www.iphotographeroftheyear.com Deadline: 28 February 2016

# The Prix Virginia Contest

The Competition: Aimed at recognising women photographers, the Prix Virginia contest is open to all professional women photographers, with the exception of photojournalists and advertising photographers. Photographs submitted must not have been exhibited in France.

Prizes: The winner will receive 10,000 Euro (approx. Rs. 7,41,000), publication of the work in M magazine, exhibition in L'Espace photographique de l'Hôtel de Sauroy in Paris and the winner's photographs will be published in a box-book.

Website: www.prixvirginia.com/home.html

Deadline: 20 March 2016

### **Nikon International Small World Competition**

The Competition: In its 40th year, the Nikon International Small World Competition is dedicated to furthering creativity in microscopy. Designed for photomicrographers, the contest invites images that creatively combine skills in microscopy and photography to capture images of the unseen world. Prizes: The first prize winner receives USD 3000 (approx. Rs. 2,02,000), while the second and third prize winners will receive USD 2000 (approx. Rs. 1,35,00) and USD 1000 (approx. Rs. 68,000) respectively. The prize money will be used towards the purchase of Nikon equipment.

Website: www.microscopyu.com/smallworld/

registration/entrypage1.aspx

Deadline: 30 April 2016



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www.betterphotography.in

BETTER PHOTOGRAPHY FEBRUARY 2016

# Winners and Finalists of the Aftermath Project Grant 2016 Announced

Pounded by Sara Terry, the Aftermath Project is a non-profit organisation committed to bringing out stories from those communities which are recovering from conflict. The organisation has announced the winner and the finalists of the 2016 Aftermath Project Grant. The grant was awarded to documentary photographer Nina Berman for her work Acknowledgment of Danger. The project looks at the legacy of war in America.

In addition to the winner, four finalists were also announced—Juan Arredondo for his project Everybody Needs a Good Neighbour; Bharat Choudhary for The Silence of Others; Paolo Marchetti for his project FEVER: The Awakening of European Fascism and Brian McCarty for War Toys, where he has worked with therapists to make narrative photographs which recreate children's experiences through locally found toys.



From Bharat Choudhary's *The Silence of Others* 

# NYPL uploads 1,87,000 Free-to-use Images

n 5 January 2016, New York Public Library (NYPL) announced that the out-of-copyright materials in the NYPL Digital Collections were now available for high-resolution downloads. Best of all, these images can be reused without any permission. The content dates all the way back to the 11th Century to the 21st Century. Moreover, to encourage the use of digital resources, the library is also accepting applications for a new Remix Residency program.

# RIP Holga, One of the World's Most Unique Cameras

Digital photography has spelt the slow death of many analogue systems, and the latest victim is the much-loved Holga camera. In a press release, the company announced that the factory which manufactures Holga cameras has ceased operations and will no longer be producing the cameras and accessories.

Launched in the early 80s, the medium format 120mm camera was made in Hong

Kong and soon had a cult following all over the world. The all-plastic inexpensive camera featured a simple convex-concave lens, which lead to such effects like vignetting, blur and light leaks.

A factory spokesperson in China said that all Holga tools have been thrown away and nothing is available for sale. Inventory is still available around the world, but will not be restocked once the units sell out.

# **SILK Photos Announces Mentorship Program**

SILK Photos, a boutique photo agency of wedding photographers and videographers specialising in Indian weddings, has announced the RAW SILK Mentorship Program, established to encourage young emerging wedding photographers from around the world. The program aims at providing professional development tools to those photographers whom the agency members believe are promising talents.

Photographers will be selected for the RAW SILK Program through nominations

by the agency members. Those selected will be trained by senior SILK photographers to help them hone their skills and develop their own style. Moreover, SILK Photo Agency will represent the photographers' works for the duration of the program. Some of the photographers associated with SILK Photo Agency include Sephi Bergerson, Andrew Adams, Apresh Chavda, Ashish Chawla, Mili Ghosh, Dror Eyal and Christophe Viseux. For more information on how you can apply for the program, visit www.silkphotos.com

# 120-year-old Astronomy Photo Plates Discovered

A stronomer Holger Pedersen was in for a surprise recently, when he stumbled upon 120-year-old photo plates in the Ostervold Observatory in the basement of the Niels Bohr Institute, Copenhagen. He had gone there to make himself a cup of tea, when he noticed some cardboard boxes in the observatory. They were full of cartons, and upon inspection, Pedersen found several glass plates with astronomical readings which date more than 120 years.

There were more than 150 glass plates, carefully labelled, from as early as 1895 in the boxes. "It is astronomy archaeology," he was quoted as saying. Many astronomical phenomena have been recorded on the plates, including binary stars, the Jupiter, the massive star Arcturus in the Boötes constellation and even the Orion Nebula.

Of particular interest in a glass plate from 1919, which captured a solar eclipse in Brazil by one of the period's most important astronomers, Arthur Eddington. The image of the eclipse, in fact, is an evidence to support Albert Einstein's theory of relativity.

The images that were recorded at the Østervold Observatory itself were shot using a telescope with 300mm double reflector with a focal depth of 4.9m and a 200mm photographic lens with a focal depth of 4.8m, cutting-edge technology for the time.



Seen here is the solar eclipse from 1919, which the English astronomer Arthur Eddington used as evidence for Albert Einstein's general theory of relativity.

els Bohr Institue

BETTER PHOTOGRAPHY

# **INDUSTRY VOICE**

# "Xerox has a strong presence in the digital printing market across segments."



Balaji Rajagopalan Executive Director, Technology, Channels and International Distributor Operations, Xerox India

The printing industry is evolving rapidly, largely led by the growing need for adoption of new technologies. Today, the print providers need to do much more than matching hardware specifications and ensuring high quality output; options like printing from cloud, mobile printing, storage solutions etc. have become a must in the MFD space today.

Vendors are constantly updating their offerings with new software specifications to meet these growing demands. Software is starting to play a significant role in the MFD market today and will continue to shape the future of the overall hardware ecosystem. We realised this trend way back in 2013 and had launched ConnectKey enabled devices which do much more than printing.

We launched a slew of products in 2015 off it, the Versant series emerged as the best fit for the commercial and photo printing market in India. Consumers have adopted well to changing technology. With increased automation, consumers have been able to focus on what matters most—real business.

— As told to Shridhar Kunte

# Kodak's Super 8 Cam with Digital Features

Fifty years after manufacturing Super 8 film, Kodak announced the re-launch of their Super 8 camera, combining the classic features of a Super 8 with digital functionality. The camera features a 3.5-inch swivelling digital viewfinder. Each cartridge contains 50 feet of film. Moreover, once you have used up the film, you can send it back to Kodak, who will process it, scan it and deliver it to you as a digital copy and as an 8mm film to use with a projector.

# The Monkey Copyright Verdict is Finally Here

Five years after the famous macaque selfie was made, there finally seems to be some resolution to the PETA vs David Slater copyright case. A federal judge in San Francisco stated that he was planning to dismiss the case, ruling that monkeys cannot hold copyrights to photographs.

"I'm not the person to weigh into this. This is an issue for Congress and the President," the judge said from the bench. "If they think animals should have the right of copyright they're free, I think, under the Constitution, to do that." PETA had filed the suit against Slater in



2015, stating that since it was the macaque who pressed the shutter, it owned the copyrights to the image, not Slater. Thus, all proceeds from the image should be received by the macaque, who goes by the name Naruto. Even Wikipedia took Naruto's side and uploaded the image on the website under public domain.

Meanwhile, Slater has a British copyright for the image, which he says should be honoured

worldwide. PETA is not giving up any time soon, however, and they are planning to file an amended lawsuit. Naruto, on his part, offered no comments towards the case, instead enjoying life as a haplorhine primate.

# **Butterfly Photographer Kjell Sandved Passes Away**

The Norwegian publisher Kjell Sandved, whose true passion lay in

photographing nature and butterflies, passed away on 20 December 2015 at his home in Washington, USA. He was 93-years-old and had dementia.

A photographer for the Smithsonian Institution's Museum of Natural History, Sandved closely followed and captured the wondrous patterns seen on butterfly wings. He was not a trained photographer, instead he honed his skills through trial and error. He spent nearly three decades,

travelling the world for the museum, capturing the delights of the natural world.

So passionate about photographing butterflies and moths, he found ways to photograph them through microscopes and even built special lights out of spare parts. One of his most popular photo series is of him photographing butterfly wings' patterns that look like the alphabet and numbers. He considered his biggest achievement to be that he never killed or damaged a single butterfly in all his years of photographing them.



In *The Butterfly Alphabet* series, Sandved found all 26 letters of the Latin alphabets and the Arabic numerals 0 to 9 on butterfly wings.



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www.betterphotography.in

# GearGuide

# **HOW WE TEST**

# **Product Categorisation**

We first segregate products into categories for the purpose of equitability in testing. The DSLR is divided into entry-level, semi-professional and professional categories. For compacts, we distinguish between advanced and basic compact cameras. Similarly, we also test consumer and pro lenses, flashguns, printers, and other photographic accessories and gear.

### The Process

We primarily test for features, performance, build, ergonomics, warranty and support. While this remains constant, the weightage we give to these parameter differs from category to category, because different types of consumers have diverse expectations from products.

# **Final Ratings**

Under each main parameter. we list out hundreds of individual variables (for eg. colour accuracy for individual colours in different lighting, individual features, dynamic range, centerto-edge definition, light falloff, etc) against which we either give points or simply mark 'yes' or 'no'. Thus, we arrive at a score for that parameter, and then, the final score, denoted as a percentage. Additionally, based on the current pricing of a product, a star rating for 'Value for Money' is considered. Value for Money does not affect the final percentage, because prices for products change constantly.

## **Our Seals of Approval**

Any product that scores 80% or higher in individual tests gets 'BP Recommended'—a seal of approval from our team.

### Top 30 Cameras

At the end of the calendar year, we evaluate the Indian market and choose what we think are the 30 best cameras, across price ranges. This is Better Photography's recognition of the very best products launched over the course of the year. Our list becomes an interesting reflection of how the camera market is constantly growing and evolving.



**Canon EOS M3** 

# Mirrorless Tiptoes

The Canon M series has been underwhelming since the company's delayed entry in the mirrorless arena, back in 2012. Conchita Fernandes checks if the new EOS M3 takes steps in the right direction.

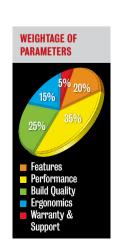
hree and a half years after the launch of the original Canon EOS M, the system has only trudged along at a slow pace, with very few updates that do not seem to have taken the bar forward. Of course, the M's embarassingly lacklustre AF was improved by a small degree via firmware, and the M2 further improved things in that department. But at a time when other manufacturers are have launched several generations of mirrorless cameras, the giant manufacturer's steps into this world have seemed almost like afterthoughts.

### Feature

The M3 aims to change that, as a mere glance tells us that this is the company's most serious mirrorless offering yet.

Unlike the M and M2, the M3 does not look like a toy. It has a decent amount of external control possible, with a mode dial and an Exposure Compensation dial, a little reminiscent of the newer G series cameras. There is also a relatively deep and pronounced handgrip, which gives the otherwise small camera a sturdy heft.

The most crucial change in the M3 is the new 24MP APS-C sensor, instead of the ageing 18MP one. One can guess that this is a sensor similar to the one present in the 760D. It also comes equipped with a Hybrid CMOS III AF system, and an ISO range of up to 12,800. The touchscreen has been upgraded with a 1.04 million-dot 3-inch tilting display, that flips out to 45° downwards and 180° upwards, much like a front-facing camera.



SonyCyber-shotRX10II
Afastcamerawithaslow
motionupgrade



TEST

DJIOsmo

The perfect cinematic experience?



Vanguard Heralder 49
A conventional and intelligently designed bag



28

The camera allows you to mount an external EVF onto the camera's hot shoe. But the viewfinder is not built-in and needs to be bought separately (and is quite expensive). That is a disappointment, considering that the similarly priced Sony Alpha 6000 has an EVF as a part of the camera body.

The M<sub>3</sub> has a bunch of features that may seem commonplace in mirrorless technology today, but are new to the M series. There is an electronic first-curtain shutter, automatic lens corrections, focus peaking, WiFi, NFC, 14-bit RAW and also, a built-in flash.

The M3 shoots 1080p Full HD video at 24, 25 or 30fps, with manual control over exposure and a microphone input. The inclusion of the mic makes it a device that a lot of video bloggers would appreciate. The video bar has moved ahead, but Canon, though with limited features, does offer pleasing video footage with efficient AF tracking.

Another limitation of the M series is the system itself, with merely five lenses into the fourth year, including just one prime.

# **Handling**

The M3's body is largely made of stainless steel, magnesium alloy and polycarbonate, and feels quite sturdy. The kit lens seems a little big though, considering that most other manufacturers have moved to collapsible lens designs that are much smaller. The collapsible design also allows motorised zoom, which makes much more sense for video shooting, so this is definitely a drawback.

The inclusion of a dedicated Exposure Compensation dial must be applauded, but its implementation could have been better. The dial is too flushed into the body and it gets annoyingly difficult to change settings, especially when you are concentrating on the composition and moment.

The tilting touchscreen (the predecessor's screen was fixed) is well implemented, and

### **ALSO LOOK FOR**

Sony Alpha 6000Sony Alpha 5100

• The inconspicuousness of the camera, along with the aid of the tilting LCD, allowed me to photograph the young girls without drawing their attention towards me.

Exposure: 1/320sec at f/5.6 (ISO 400)



WHAT'S IN THE BOX

- Battery charger
- Micro USB cable
- Neck StrapLens cap





# **PLUS**

- Big upgrade
- Excellent JPEGs
- Significant grip

### MINUS

- Battery life
- Inconsistent AF
- Lack of EVF
- Too pricey

# **Performance**

The autofocus of the M3 is a huge improvement over the M and M2, and the inclusion of the new sensor with its CMOS AF III has probably a lot to do with

this is one area where Canon is showing

The screen real estate can be customised,

quite fast with the use of the touchscreen.

and overall operation and use becomes

its competition how to do things right.

that. That said, it's not as fast as the Sony, Olympus, Panasonic and Nikon mirrorless cameras in this price range. The AF can be an irritant if you shoot a lot in low light, but in good light, it's usable enough.

Image quality is similar to that of the 760D, which is largely pleasing. There is noise visible from ISO 800 onwards, but if you get exposures right, ISO 6400 can produce usable, albeit slightly grainy results. The headroom in the RAW files

• Even in tricky lighting conditions, the camera managed to expose correctly for the various regions in the scene Exposure: 1/80sec at f/3.5 (ISO 5000)

# **ERGONOMICS**



The front of the camera is still quite minimalistic and bares a close resemblance to the M2, barring the more pronounced right hand grip. The M3 is also slightly bigger-looking.



On top of the camera you will find three dials, giving you access to the camera's different modes, exposure compensation and the one around the shutter button customisable to control shutterspeed or aperture.



Departing from its minimalistic front side, Canon has added quite a few options to the rear side of the camera. Additionally, there's the impressive touchscreen LCD, which you can flip out.

BETTER PHOTOGRAPHY

Model name	Canon EOS M3
MRP	Rs 49,995
Effective pixels	24.2 MP
Sensor size, type	APS-C, CMOS
Processor	DIGIC 6
Recording Formats	Stills: 14bit RAW, JPEG Movie: MP4
Focussing Modes	Continuous AF, One Shot AF. Servo AF, Manual Focus, 1-point, Face+Tracking, Touchscreen AF
AF Points	49-point AF
Continuous Shooting	4.2fps
Metering	Evaluative, Partial at center, Center-weighted average, Spot
Shutterspeed Range	Bulb-1/4000sec
Exp. Compensation	+/- 3 EV, at 1/3 stops
Colour space	sRGB
ISO	Auto, 100–12800 (expandable to 25,600)
White Balance	8 Auto presets, 1 Custom
Flash/hot shoe	Built-in flash, hot shoe present
LCD size, dots	3-inch tilt type, 1,040,000 dots
Viewfinder	No
File Formats	JPEG, RAW
Image Stabilisation	No
Video resolutions	1920 x 1080 at 25, 25 and 30p, mic input present
Environmentally seale	d No
Storage Types	SD, SDHC, SDXC
Other Features	HDR, Hand-held Twilight mode, Chromatic Aberration and Vignetting Correction, Custom Functions, WiFi with NFC
Battery	Li-on battery
Dimensions	10.9 x 68 x 44.4mm

366g

SPECIFICATIONS

Weight

FEBRUARY 2016

isn't as good though, but again, it's a definite improvement from the old 18MP sensor. The JPEG engine is one of the nicer points about the camera, where the images are pleasing crisp, without being overcooked.

The kit lens of the camera is nice and sharp, and has excellent colour rendition, Battery life, however, is quite poor.

# Conclusion

Almost every aspect about the M3, from its body design to on-field handling and image quality, has got a major upheaval. But at the same time, one cannot ignore the fact that while that makes the M3 the company's first serious mirrorless contender, the competition is a fair distance ahead. The Sony Alpha 6000, particularly, offers marginally better quality, a lot more features, better battery life, faster AF and an inbuilt EVF, for a similar price.

For those who want a small camera at around Rs. 50,000, the M3 does not excite. Instead, the company's G5 X (smaller sensor, but much faster lens and EVF at the same price) and G7 X (smaller sensor, but much faster lens, no EVF, Rs. 10,000 less) are far more worthwhile options (aside from the Sony). That said, the M3 is a tentative, but important step in the right direction and hopefully augurs well for the company's tiptoeing journey into mirrorless.



Luminance noise starts becoming visible at ISO 800, and overall noise becomes prominent after ISO 3200. With careful exposure and processing though, one can use files up to ISO 6400.

# FINALRATINGS

	11 U I
Features No EVF, tilting LCD, pop-up flash, exposure compensation dial, Wifi and NFC	14/20
Performance Great image rendering in JPEGs, sluggish AF in low light, poor battery life	27/35
Build Quality Magnesium alloy body, sleek and sturdy	23/25
<b>Ergonomics</b> Good grip, inconvenient Exposure Comp. dial	11/15
Warranty & Support Wide service network	4/5

Who should buy it? Only serious Canon DSLR owners who would want a small interchangeable-lens camera system that has a similar colour palette.

**Why?** Others would want to look at cameras like the Sony Alpha 6000, Canon G5 X and G7X.

Value for Money ★★★☆☆



Sony Cyber-shot RX10 II

# **Slowing Down the Competition**

The 1-inch sensor battle is getting interesting. With the **Sony Cyber-shot RX10** II, the company has pulled out all its guns on speed, and yet, on slowness. **Shridhar Kunte** reviews this pricey, but feature-packed slow-mo specialist.

he Sony RX10 II's uniqueness can be best expressed by citing a simple fact. It has only three competitors that are similar in any way, and one of those is its predecessor.

Along with the older RX10 and the Panasonic FZ1000 and Canon PowerShot G3X, this is a class of cameras that not only packs in a 1-inch sensor, but also includes a reasonably long lens. Between themselves, they have some key differences in features and functionality that determine whether their prime target audience is the wildlife enthusiast or the traveller.

# WHAT'S IN THE BOX

- NP-FW50 Lithium-Ion Rechargeable Battery
- AC Adapter AC– UB10C
- Micro USB cable
- Shoulder strap
- Lens cap
- Hot shoe cap
- Lens hoodEyepiece cup

### **Features**

The RX10 II has a lesser zoom range than the Panasonic and Canon, but its lens still has a trick up its sleeve. The maximum aperture is f/2.8, all through the 24–200mm zoom range of

the camera. Not only does this give the RX10 II a serious low light advantage over any other superzoom camera in the market, it also allows a great amount of depth separation, for effective portraiture. The background blur managed by a 1-inch sensor at 200mm f/2.8, can easily rival the background blur produced by an APS-C DSLR with its kit lens.

A bit of historical perspective is necessary. The older RX10 was unique when it was first announced, but it quickly lost its sheen, when Panasonic announced the FZ1000, with 4k video (that the older Sony couldn't do). The FZ1000 has dropped in price since, and considering that the RX10 II is much more expensive (Rs. 94,990 as opposed to the Panasonic, which is only Rs. 58,990), Sony has a lot to prove.

And so, the company has unleashed all its technological prowess when it comes

# **ALSO LOOK FOR**

Panasonic FZ1000Ganon G3 X









## **PLUS**

- Excellent speed
- Slow motion
- Image quality

## MINUS

- Gost
- No touchscreen
- Limited LCD screen flexibility

to the hardware of the camera. One can shoot 4k video in XAVC S format, at a frame rate of 24,25 or 30fps at a bit rate as high as 100Mbit/sec. This new camera also gains all the slow-motion goodies that we saw in the RX100 IV. One can shoot nearly Full HD video at 250fps, 720p HD video at 500fps, and for lower-resolution video, one can go up up to a crazy 1000fps!

Interestingly, the RX10 II has an end trigger mode, which actually captures footage two or four seconds *before* the Movie

button has been pressed! It's strange we have reached a point in technology where these new features have almost done away with the whole idea and philosophy of the 'decisive' moment.

The 20.2MP sensor is the same as the one used in the RX100 IV. In Speed Priority Continuous mode, the camera now shoots upto 14fps (with focus locked), and with continuous AF, managed 5fps—both of which are big improvements. The buffer has been expanded, and now accomodates 44

◆ The background blur that is possible with the RX10 II is even better than entry-level DSLRs used with their kit lenses. Exposure: 1/200sec at f/2.8 (ISO 125)

# **ERGONOMICS**



The RX10 II looks much like an entry or mid-level DSLR with its kit lens. It is quite chunky, especially when the lens barrel is extended because of the constant f/2.8 aperture of the lens.



On the top you will find LCD that displays important settings like White Balance, aperture, shutterspeed and the remaining space on the memory card. This is very similar to Canon's entry level DSLR cameras.



While shooting in dark, you can push the backlit illumination switch to make things easily readable. The dials offer the right amount of resistance so that you don't end up changing them inadvertently.

BETTER PHOTOGRAPHY FEBRUARY 2016

# **SPECIFICATIONS**

Model name	Sony Cyber-shot RX10 II
MRP	Rs. 94,990
Effective pixels	20.1 megapixels
Max. resolution	5472 x 3648 pixels
Sensor size, type	1 inch, CMOS
Lens	24–200mm f/2.8 (in terms of 35mm parlance)
Aspect ratio (w:h)	1:1, 3:2, 4:3, 16:9
Focusing modes	Single-shot AF/Continuous AF/ DMF/Manual Focus
Metering	Multi Pattern/Center Weighted/Spot
Frame Rate	5fps (with continuous AF), 14fps (with focus locked)
Video	4k at 24, 25, 30fps; Full HD video at 60p, slow motion video at 250fps, 720p video at 500fps and SD vide1000fps
Shutterspeed range	Bulb, 30sec-1/3200sec)
Exp. compensation	+/- 3 EV in 1/3 EV steps
Colour space	sRGB, Adobe RGB
ISO	Auto, ISO 100-12,800
White balance	Auto, Daylight, Shade, Cloudy, Incandescent, Fluorescent: Warm White, Fluorescent: Cool White, Fluorescent: Day White, Fluorescent: Daylight, Flash, C.Temp, Filter, Custom
Drive modes	Speed Priority Continuous Shooting: approx. 14 fps
Built-in flash	Yes
External flash	Yes
Flash modes	Auto, Flash On, Slow Synchro, Rear Sync, Flash Off, Wireless
Flash range	Guide no. 13
LCD size	3-inch
LCD dots	460,000
Viewfinder	Yes, EVF
File format	Still: RAW, JPEG, Video: H.264
Image stabilisation	Yes
Storage types	SD/SDHC/SDXC card
Environmentally sealed	Yes
Dimensions, weight	130.6 x 90.7 x 126mm, 813g

Extra Fine JPEG frames or 29 RAW frames (as per our tests), a big leap forward than the original RX10's 21 JPEG or 10 RAW frames.

The camera allows you to shoot at an incredibly fast shutterspeed of 1/32000sec, which, aside from freezing action, can be used to shoot in bright light at large apertures.

# Handling

While the innards have got a complete overhaul, on the exterior, the looks remain deceptive, as the II looks nearly identical

to the older RX10. It's a form factor rather similar to a DSLR with its kit lens. The outer shell is made of magnesium alloy and feels solid and premium. The camera offers a good amount of protection against dust and splashes. The largely manual operation, with the large barrel and clear markings, improve its on-field handling.

The aperture ring offers clicks at every setting and you can control the aperture with 1/3-stop intervals. The zoom action can be controlled by two ways with the zoom ring on the lens or the lever surrounding the shutter release button. This is an electro-mechanical action and is slower than mechanical zoom action found on conventional interchangeable lens cameras. The EVF's resolution has been upgraded and it is quite comfortable to use.

# **Performance**

I must say that the focusing speed of the camera is good and I did not have any issues while shooting outdoors. The Tracking AF does a very commendable job, especially when compared to other compact cameras.

Up to ISO 800, the image quality is nearly as good as that of any entry-level DSLR, with the lens resolving a good amount of detail, more than what a regular kit lens would achieve. Beyond ISO 800 though, the 1-inch sensor starts showing the limitations. JPEGs get smudgy, and the JPEG engine does not do full justice to how good the RAW files are.

### Conclusion

There is no faulting the RX10 II as a camera. The only thing you need to ask yourself is whether its steep price justifies your needs. If you are primarily a stills shooter, you may want to look at the Canon PowerShot G3X, which has equivalent image quality and far more reach (600mm). But its lack of EVF makes the Sony seem like a better option, if you don't need the extra zoom.

Video enthusiasts, on the other hand, may well be advised to look at the FZ1000 as a far more value-for-money 4k-shooting proposition. Where the Sony scores is its super slow-mo modes and low light shooting (courtesy its f/2.8 lens). But if price is no consideration, the Sony RX10 II is at the top of the pack, and one can only marvel at where the 1-inch brigade will go next.



Upto ISO 800, noise is barely visible, and after this, there is a fine layer of luminance noise, which does not affect the image negatively. If you shoot RAW and are careful about exposures, ISO 6400 will give you usable results for mid-sized prints.

# FINALRATINGS

	11 W
Features Fast lens, 4k video, 1000fps slow-mo video	19/20
<b>Performance</b> Excellent sharpness and detail, sluggish AF in low light at the telephoto end	36/40
Build Quality Magnesium alloy body, good grip	13/15
Ergonomics Lightweight, aperture ring, custom buttons	17/20
Warranty & Support Three-year warranty, 200 service centres around the country	4/5

# OVERALL 89%

Who should buy it? Travellers who shoot a lot of video and want an all rounder without compromising quality

Why? The RX10 II has several video features, that are unique in the superzoom world, and its constant f/2.8 lens makes it an effective travel companion in difficult light conditions.

Value for Money ★★★☆☆

\_



# <sup>®</sup> True Cinematic Appeal

The **DJI OSMO** promises incredible 3-axis automated stabilisation in a compact, portable body. **Natasha Desai** takes this unique device out for a spin.

he year of 2013 saw the unveiling of the Phantom by the Dajiang Innovation Technology Co (DJI), that gave birth to a new segment of Unmanned Aerial Vehicles (UAVs) or drones. DJI quickly set about being the leader as their quality of drones remained unmatched. Coming from a company known for its innovative thinking, I was quite excited to try out the DJI Osmo, which is a 4K shooter with their Zenmuse X3, a 3-axis gimbal for stabilisation.



The Osmo is an eye-like camera atop a pistol grip which also has a mount for your cellphone. The 12MP, 1/2.3-inch sensor shoots 4K video and offers RAW and JPEG stills. What makes it unique is the gimbal with 3-axis automated stabilisation, that can be calibrated with a single tap of the button from whichever position it is in. Its still modes include a Burst Mode of 3, 5 and 7

shots, Auto Exposure Bracketing for 3 or 5 frames at 0.7EV bias, Interval, Timelapse and Panorama. Video includes Auto and Slow Motion modes.

# **Handling**

The gimbal grip is comfortable to hold and can be set down on flat surfaces as well.

Located within thumb reach is a joystick to control the camera movement, the shutter release button and video record button. I found that controlling the camera

## **PLUS**

- Lightweight
  - etabiliaation
- Range of mounts

### MINIIS

- 4K footage and RAW image transfer not enabled for phone
- Battery life

### **SPECIFICATIONS**

Model name	DJI OSMO
MRP	Rs. 62,000
Sensor, Effective Pixels	1/2.3-inch, 12MP
Closest focusing distance	3.5m
ISO	100-1600/3200 (photo/video)
Lens	20mm (35mm equivalent)
Max. Aperture	2.8
Dimensions	61.8 x 48.2 x 161.5 mm
•	2.0

WEIGHTAGE OF PARAMETERS

5% 20%

25%
35%

Features
Performance
Build Quality
Ergonomics
Warranty & Support

DJI Osmo

BETTER PHOTOGRAPHY | FEBRUARY 2016



movement via the joystick takes a little getting used to, but, the gimbal's motion in relation to where its pointed is very fluid and intuitive. The device itself moves in a smooth fluid motion, whether you are moving it up, down, sideways, using it underslung or by rotating your wrist. The gimbal also, allows you to shoot low near the ground, something that standard ones aren't able to do. At the front, within reach of your index finger is a trigger. When held down, the camera remains fixed in the direction it is pointed at while you can move the gimbal. A double press recenters the camera and a triple press turns it to the selfie mode. The overall build, however, is very delicate, prones to scartches and dropping it would be quite disasterous.

### **Performance**

While the final video is greatly stabilised, if you have a particularly careening walk, or are swaying a lot, the video will pick it up. The Osmo shoots 360° Panoramas automatically, whether handheld or placed

on a flat surface and stitches them together. You can also shoot handheld long exposures with the Osmo and capture very minimal shake. As far as image quality is concerned, bright light images are crisp, sharp and have a good amount details in both highlights and shadows. Low light performance is not bad, although there is loss of detail after ISO800. You can import JPEGs and 720p video to your phone from the device, but, it does not allow import of 4K and RAW stills which will have to transferred from the storage. Also, when used for longer durations, the device was prone to heating up and the battery life left a little more to be desired.

# Conclusion

At a price of Rs. 62,000, the Osmo is an interesting solution for video enthusiasts and filmmakers on a budget looking for steadicam-like 4K footage in a relatively inexpensive device. But, if you require extensive low light work then you could look investing more in theMFT sensor in the DJI Zenmuse X5.

The DJI GO app allows you to tap on the screen and set the exposure point. You can also use it to control the gimbal movement, although this does have some lag, exposure settings, resolution and remote control among others. You can also edit and share photos and videos. Exposure: 1/100sec at f/2.8 (ISO 1600)

# FINALRATINGS

Features 12MP, 1/2.3-inch sensor, 4K video, 3-axis stabilised gimbal, microphone support	16/20
Performance Good image quality, great stabilised video	33/35
<b>Build Quality</b> Delicate, with a high chance of damage	20/25
Ergonomics Easy to use and operate with phone mount attached	13/15
Warranty & Support One year warranty & limited service network	2/5



Who should buy it? Video enthusiasts, filmmakers who want good quality stabilised video.

**Why?** The portability and affordability for the kind of stabilisation it offers is excellent.

Value for Money ★★★★☆







Above are the different ways you can move the gimbal while the camera is pointed in the direction you want.

FEBRUARY 2016 BETTER PHOTOGRAPHY

# Vanguard Heralder 49

# **A Bag that Means Business**

When it comes to photography gear carriers, the Vanguard Heralder 49 is a serious contender. Conchita Fernandes finds out if this is the case.

The bag's thick padded shoulder straps, padded mesh-back panels for air flow and a provision to strap the bag to a trolley for easy movement, makes it a good travel companion.

ne of the biggest concerns that photographers have when purchasing a camera bag is determining how safe it is. Whether it will protect their gear, come rain or sunshine, and from the lingering hands of thieves. With the Heralder 49, Vanguard has worked hard to make this requirement their biggest priority.

### What's Inside

At first glance, the Heralder 49 does not look like your average bagpack. Just by looking at its size and padded exterior, you can immediately gauge that the bag is designed for users whose requirement involves carrying a lot of gear, with the added comfort and safety. True to its word, upon opening the main compartment, you will find that it's divided into several sections that can accommodate a DSLR attached with a telephoto lens, a second DSLR body, five to six additional lenses, two flash units, an accessory pouch and a tablet device. Behind this is a secondary compartment to accommodate a 15-inch laptop.

The bag also features several pockets. I quite liked the idea of the tripod-carrying contraption and sling on the side to secure it firmly to the bag, and the pocket on the left side, specially designed to give you access to your memory cards and batteries.

## On the Safety End

Vanguard has added magnetic security tabs that are strategically placed in different areas



• The inner compartments of the bag

are all adjustable to allow

you to accommodate

also swing the bag to

your camera body, by

partially unzipping the

one side and access

main compartment.

the gear as per your preference. You can





of the bag. So even if anyone tries to unzip one of the pockets, they will have to tug really hard to do so.

Aside from this, the zippers of the bag have been specially designed to prevent water from seeping into the pockets. The bottom of the bag is made up of a waterproof material, so that you can place it on any wet surface, and is washable too. There is also a rain cover unit which can be accessed from the bottom of the bag.

### **Almost Flawless**

After exploring every nook and cranny of the bag, I was unable to find any feature that I disliked. What Vanguard has created here is a conventional and no-nonsense bag, with intelligent designing. I was able to easily access all the accessories and gear without too much hassle.

Despite not finding any fault with the design and features, I wasn't too excited about its cost. Priced at almost Rs. 15,000, the pricing is definitely on the steeper side. However, if you own that much of gear and are looking for a strong and durable backpack, then the price is a small amount to pay.

# SPECIFICATIONS

- Product Name: Vanguard Heralder 49
- MRP: Rs. 14,990
- Dimensions: 38 24 x 49.5cm

### Product source:

*Nikita Distributors* +91-20-30500600 +91-20-30500614



BETTER PHOTOGRAPHY

# Pictography Better Geliphone Photography



# NEW YEAR, NEW VISIONS

Our readers share their best photographs that kickstarted their 2016

- Even a cameraphone can shoot the nightsky! Find out how
- On the test bench: Lava Pixel V2, Honor 7

"I'm always
amazed that
people take
what I say
seriously. I don't
even take what
I am seriously."
—David Bowie



# **Ziggy Stardust and the Beauty of Reinvention**

On 10 January 2016, the world lost a trailblazer, a pioneer musician and an artist unlike any other, David Bowie. After battling with cancer for 18 months, he succumbed to the disease at the age of 69. As the news broke out, his heartbroken fans reacted in every possible way they could. Many organised impromptu tribute concerts, several lit candles to remember him and some others used the written word to express their sense of loss, much like I am doing today.

Since I found out about his death, I have heard *Space Oddity, Starman, Changes, Heroes* and *Ashes* to *Ashes* on repeat. Each song is stylistically different from the next, and it is sometimes hard to believe that they have all come from the mind of one man. One of the things that made Bowie so legendary was the fact that he was constantly reinventing himself. From a red haired Ziggy Stardust to Aladdin Sane to the extraterrestrial being The Thin White Duke, Bowie was like a chameleon, immersing himself completely into character, yet having no trouble transitioning into the next one. And he did not just limit himself to music... he also acted in many unforgettable movies. And now he is gone, leaving behind a David Bowie shaped void.

But it makes me question can we, through our own means, try and fill that void? Can we embrace unpredictability, aim to inspire and shock and make the viewer feel a myriad of emotions every time we create an image? Can we open our minds to the limitless possibilities of image-making? Can we so passionately pursue a certain aesthetic and let it go instantly at the prospect of finding something new to create, without any regrets and with just as much enthusiasm? "I don't know where I'm going from here, but I promise it won't be boring," said Bowie, and I'd like to think of him somewhere in space, shining bright.



supriya.j@network18publishing.com



# The Smiling Duo by Akash Akinwar

"I was enamoured by the love flowing between my wife and son. I just couldn't help myself from capturing the photograph."

To see the winning images from the Readers' Gallery Contest — 'Bringing in the New Year' Turn to page 46

8 tips to shoot the night skies with your cellphone Turn to page 44

Cover photograph by Rammohan Paraniape



All art is unstable. Its meaning is not necessarily that implied by the author. There is no authoritative voice. There are only multiple readings.

**DAVID BOWIE (1947–2016)** 

English singer, songwriter, record producer, painter and actor, David Bowie, was one of the most influential artists of the 21st Century.

He was posthumously given his own constellation, consisting of seven stars in the shape of a lightning bolt.

39



# Frame your stories better.

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Honor 7

# A Brimful of Honour

The **Honor 7** promised top-end specs for a mid-range budget, **Natasha Desai** finds out if it holds any appeal for photographers.

# A Stellar Line Up

The 7's Kirin 935 Octa-core processor (with four cores operating on 2.2GHz and four on 1.5 GHz) makes the phone very fast, with no hiccups during shooting or editing and multi-tasking. I found the screen to be very comfortable at 5.2 inches. I think its important that a phone not be too big, as many photographic situations require quick one-handed shooting. Another thing I like is the dual tone LED rear flash.

• The Smart Key on the side of the phone can be assigned to shoot an Ultra Snapshot, which basically shoots as soon as you press the button. A feature I found to be tremendously useful when shooting out and about.

uawei's tremendously successful sub-brand Honor has been a serious contender in the mid to budget range in India. So far, their 4X has been amongst the most successful in India. With the Honor 7, the flagship they released late last year, they are stepping up their game. It has a 20MP camera, which is great for a cellphone and makes easy to crop images without compromising on image quality.



otographs by Natasha Desai

BETTER PHOTOGRAPHY



Considering how small a cellphone sensor is, the shadows preserved a good amount of recoverable detail. The resulting images matched the ambient light with decent accuracy and hence did not have the ghost like white colour that a regular single flash would give.

# **A Good Shooter**

In terms of image quality, the cellphone has no problem in bright light conditions. Images are sharp, clear and had a good amount of detail present in the highlights and shadows. The autofocus was able to lock on and there was a negligible amount of shutter lag. In low light conditions, however, the autofocus took its time and sometimes missed the subject completely.

Like the Honor 6 Plus, the 7 offers the All Focus mode, allowing you to refocus in your image after shooting. While its an interesting feature, I find that the final image still lacks the finesse in depth.

Also, it takes a while to capture the image.

Additionally, the 7 shoots slow motion video, time lapse, and has the Super Night mode, which functions much like a long exposure mode. The results are not bad, provided you can keep the phone steady. On the front of the phone is an excellent 8MP camera that gives clear and sharp

images. It also has a soft light for low light shooting conditions.

# **The Waiting Game**

Priced at Rs. 22,999, the Honor 7's camera performance is not bad. At this point, it faces competition from the 13MP OnePlus 2 priced at 24,999, whose image quality is at par with the Honor 7. As a flagship, it holds it own in this price range and would make a decent upgrade for existing Honor users. For people conidering Honor for the first time, I think it would be wiser to wait for their next flagship and then decide.

AT A GLANCE		
SPECIFICATIONS	20MP rear and 8MP front camera, 16GB built-in memory (expandable up to 128GB), Kirin 935 Octa-core processor, 3GB RAM, Rs. 22,999.	
WHAT WE LIKE	Decent camera performance, good UI and hardware	
WHAT WE DISLIKE	Average low light performance	
WHY BUY IT?	The phone has great specs, good battery life and decent camera performance for its price range.	

FINAL RATINGS	86%
CAMERA FEATURES 20MP dual LED flash, 8MP front camera with flash,	21/25
IMAGE QUALITY Good in daylight but average in low light.	26/30
VIDEO QUALITY Good at 1080p	12/15
HANDLING Smooth back and perfect for one-handed usage	14/15
SPEED & RESPONSIVENESS Excellent speed with no shutter lag	13/15

FEBRUARY 2016 BETTER PHOTOGRAPHY



**Lava Pixel V2** 

# Blowing Hot, Blowing Gold

Supriya Joshi tests the Lava Pixel V2 to see if it really is smartphone

photography redefined.

# **Next in Line**

A follow-up to the Lava Pixel V1, the V2 features a 13MP rear camera with 1.4-micron pixel size, an aperture of f/2, 5p Largan lens and Blue Glass filter with dual-LED flash. It also features an 8MP front-facing camera with f/2.4 aperture, 4p lens and LED flash as well. The company has packed in an endless

O Despite poor low light image quality, the AF speed of the Pixel V2 is quite responsive.

ava Mobiles' marketing strategy lately has been to push for the Pixel series as real pathbreaking imaging devices. For the latest ■ Pixel V2, they signed up fashion photographer Subi Samuel to sell us the camera features the device offers. But just like any product, it's best to keep your reservations until you see it for yourself.



# APPS YOU MUST TRY

Selfie lovers should try the app B612-Selfie from the Heart, available for free for Android OS. It comes with a host of filters and framing options.
Plus, it won the Red Dot Best of the Best award in 2015!



The phone allows you to shoot at bursts of 40 or 60 frames at a stretch to help you capture pivotal scenes. amount of shooting modes and filters into the phone, some of them including Multi angle view, Intelligent Mode, Bokeh and Panorama.

# **Not so Pleasing Results**

For a cameraphone that promises the moon, the performance of the Pixel V2 was underwhelming, at best. In bright light, the image quality passes muster, but it gets progressively worse as the light levels reduce. This, despite there being a dedicated Night Pro mode, which promises to produce clear shots in low light conditions. Smudging and smearing of details are clearly visible and aggressive noise reduction coupled with compression artifacts make for some very unpleasant low-light images.

The front camera does not perform much better, but the Wide Selfie is an interesting mode to use. It stitches together three consecutively shot images to form one wide angle photograph. An extremely outrageous Beauty Mode also exists as a camera function, which can make you look like a weird ghost-like alien. The timelapse feature is quite nifty, though, where you can set your cellphone to shoot at intervals ranging from 1sec-10sec.

In the Intelligent Mode, the phone activates a voice module which guides you to take your perfect selfie!

### Should You Buy it?

Ultimately, where the Lava Pixel V2 went wrong is that it promised too many features that it is just not capable of delivering. The MRP of Rs. 9499 is tempting, indeed, as it is overall not a bad cellphone. The 5-inch 720 x 1280 pixels screen renders colours beautifully, and the 2500mAh battery is good enough to last a day of non-continuous shooting. But for a discerning cellphone photographer, the Pixel V2 just does not make the cut. There are far too many cameraphones available today which can perform much better and even at a lesser price. Which is a shame, because the V2 is aimed specifically at cellphone photographers.

AT A GLANC	
SPECIFICATIONS	13MP rear and 8MP front camera, 16GB built-in memory (expandable up to 32GB), 1GHz quad-core MediaTek MT6735 processor, 2GB RAM, Rs. 9499
WHAT WE LIKE	Some fun modes
WHAT WE DISLIKE	Poor camera performance
WHY BUY IT?	If you are on a budget and looking for a competent cellphone, the Pixel V2 is a good choice. But for its imaging capabilities, it is a miss.

FINAL RATINGS	70%
CAMERA FEATURES 13MP dual LED flash, lots of shooting modes and filters	18/25
IMAGE QUALITY Very poor low light performance	15/30
VIDEO QUALITY Average video at Full HD 1080p at 30fps	11/15
HANDLING Simple and straighforward UI	13/15
SPEED & RESPONSIVENESS Fast AF with no shutter lag	13/15

FEBRUARY 2016 | BETTER PHOTOGRAPHY

# Tips to Shoot the Night Skies With Your Gellphone

Did you know you could use your cellphone to shoot objects above the Earth? Natasha Desai shows you eight simple things to help start your exploration in cellphone astrophotography.

he Moon, the stars, the Milky
Way, the Aurora Borealis,
the Orion and more...
photographing these beautiful
objects in the sky are a delight
and even more accessible today thanks
to advances in cellphone sensors. All you
need is a few simple things to get started.

Pick the Right Location
While this may seem like the most obvious thing, it is probably the most important. Cities and towns produce light pollution that obscure the celestial objects. You need to go to a location far enough to give you clear skies.

Map the Skies

Its 2016! There are a tonne of apps available for both Android and iOS that tell you exactly what stars, constellations, nebulae, planets and more that you can view from where you are, such as, Sky Safari and Star Walk.

Test Your Apps in Advance
Again, this might seem like the
most obvious thing, but, its nevertheless

crucial. You will require a long exposure app to shoot star trails. Also, if your phone does not allow it, you will need an app that allows manual control over your camera settings. Trying them out for the first time when you are out in the wilderness is not the best idea. Get comfortable with the various nuances of these apps well in advance.

Garry the Appropriate Tripod
While a cellphone tripod is
necessary, for absolute rock steadiness,
you could use an adapter that will fit your
cellphone on to a regular camera tripod.

Always Shoot in RAW for More Detail
If your cellphone does not allow it,
an app like PhotoRAW for iOS or Camera
FV-5 and Manual Camera for Android will
shoot your pictures in RAW.

Image Stacking is Your Friend
Shoot several images and
stack them on top of each other in a
postprocessing software. This will help
reduce noise and include much more
details in your images.

Use Additional Equipment
To shoot the Moon, planets and objects in deep space, you can use telescopes. A cellphone adapter is all you need to capture images through these devices.

Get Creative with Your Composition Shooting objects in the sky need not always be just that. By including bits of your landscape and surroundings like cars, flora, antennas you can add points of interest to your images. Take a look at Instagram's weekly Hashtag Projects s for furthfor further assignment ideas.

Opending on your budget, there are a variety of binoculars available as well. Binoculars can produce stunning results of our satellite, the Moon.



# **INSTAFOLLOW NOW**

Matt Schwartz
writes a blog about
astrophotography
with his Apple iPhone.
He shoots the night
skies regularly with his
cellphone and you cann
see his images on his
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FEBRUARY 2016



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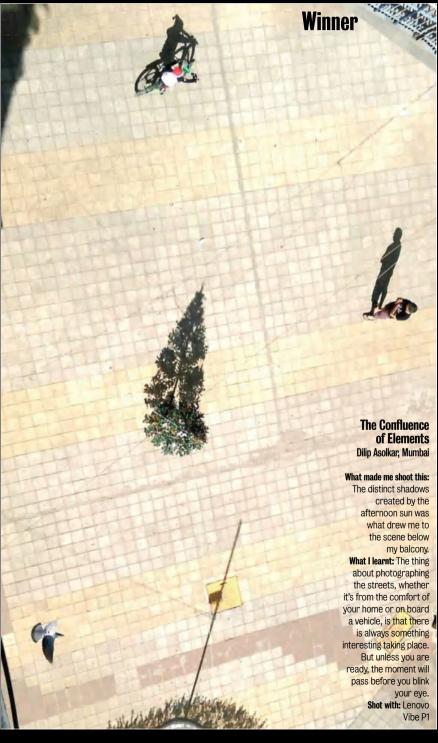
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# READERS' GALLERY

Better Cellphone Photography's readers were given an open challenge, free of genre, to portray how they plan to bring in the new year.

Presented by







The Smiling Duo

Akash Akinwar, Mumbai

What made me shoot this:
I was enamoured by the
love flowing between
my wife and son. I just
couldn't help myself from
capturing the photograph.
What I learnt:

You don't need a special occasion to make a portrait of your family. **Shot with:** Samsung Galaxy Note 4

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To be featured on these pages, participate in our contests by logging on to betterphotography.in/contests and win exciting prizes!

# **GRAND PRIZE**

The grand prize winner, gets a 4200mAh Godrej GP PowerBank, the perfect companion for cellphone and travel photographers.



also be featured on betterphotography.in. \*Actual colour of the

# Swaiting to Board Anuroop Sobanan, Thrissur

What made me shoot this: Strangely, I was drawn to the melancholic scene of the two men staring out forlornly at the open air space.

What I learnt: Airports are one of the best places to observe human behaviour. Shot with: Apple iPhone 4S







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# BetterPictures

# DISCOVERING THE COSMIC VOID

What do you see when you look at the sky? What lies beyond the endless blue? And what does it take, to unravel all the tales and mysteries that are held within? **Sakshi Parikh** speaks to 13 photographers who have dared to capture the wonders of space, both visible and invisible.





Daniel Fernández Caxete

A fascination with the night sky from his childhood days led Daniel to spend over five years (after he switched to digital) in tracking the night skies, and particularly, the International Space Station transits.

"The International Space Station (ISS) takes a mere half a second to cross the solar or lunar disk. Photographing it usually involves travelling hundreds of miles and often, several failed attempts."

The greatest joy of looking through a telescope, for me, is in the fleeting moment, like the ISS passing by, which is best visible when lit by the sun over the horizon. This shot was my 30th attempt, and the moon was highest in the sky, making the station appear larger, and much closer.

**Equipment:** Nikon D610

Exposure: 1/1000sec at f/10 (ISO 5000)





#### Paolo Porcellana

An IT consultant from Italy, he has been an amateur astronomer since he was 15 years old. Paolo also runs a Youtube channel, where he documents the workings and techniques he uses to make his astroimages. According to him, astronomy helps him combine his passion for science, nature and photography.







Solar imaging involves shooting phenomena that are constantly changing. Because of the vast difference between the bright and dark areas, one may need to make multiple photos with different exposures, and eventually merge them. This makes it important for you to work quickly, with precision.

#### "The arm of fire projecting towards space has reached a length of 7,00,000km. It will reach even higher in its process of detachment."

The sun is extremely dynamic and its structure constantly varies in luminosity. This made it difficult for me to capture the furthest parts of the huge Prominence, as I had to stitch together six different photos into one larger mosaic. On some occasions, the visibility in the sky can be problematic, and then, you will be forced to use slightly longer exposures, which will document calmer prominences.

**Equipment:** Telescope: Homemade truss refractor; Camera: PTG Chameleon Mono; Filter: Daystar Quantum 0.5A **Exposure:** Shot as a mosaic of 6 images starting from 6.71 milliseconds and gradually increased to 26.28 milliseconds



# Albert Dros An award-winning landscape photographer from Netherlands, Dros has no background in astronomy. In his opinion, that's exactly what makes his perspective unique. "It is a photographer's take, which will always be different from that of an expert within the field." he says.





#### Go Easy with the Postprocessing

Since shooting the night sky does not provide you with enough light, you tend to overprocess in order to make the image look 'better'. Instead, study different phenomena to understand when you will experience different kinds of visuals.

"The streak in the sky is not a comet or satellite. It is the International Space Station flying over at 27,000 kilometers per hour."

While capturing the Perseid meteor shower, but while shooting, I saw a star-like object moving slowly and then disappearing. After investigating on multiple forums, I realised that the serendipitous sight was of the ISS flying by! My title *Alone in the Universe* conveys how tiny we are, compared to all that's 'out there'. But come to think of it, there are humans in this station, which is an extraordinary thought, and almost contradictory, considering the title of the image.

**Equipment:** Sony A7 II, Samyang 14mm f/2.8 (FX) **Exposure:** 20sec at f/2.8 (ISO 3200)



## Born to a French father and an Argentinian mother, Luc attributes his love for travel to his mixed parentage. An amateur astronomer since childhood, he initially worked as an astrophysicist and is now a software developer.



#### Build Your Gear Over Time

With a basic DSLR, tripod and an intervalometer, you can capture conjunctions, eclipses, sunsets and meteor showers. You may then add a lightweight astronomical mount to the list, enabling yourself to photograph constellations throughout the night.



"Total solar eclipses are rare and mesmerising, and my pursuit led me to Svalbard, at the gates of the Arctic. A week of intense hiking eventually led us a sight that only lasted ten minutes."

While we were plunged into the moon's shadow, a few dozens of kilometers away, the atmosphere was still lit and was casting twilight-like colors afar, resulting in an interesting visual contradiction. This is why the horizon was much brighter on the left than on the right.

Equipment: Canon EOS 7D; Canon EF-S 15–85mm f/3.5-5.6 IS USM Exposure: Shot with three different exposures of 1/6, 1/2 and 1.6sec at f/5 (ISO 200)

#### **Alexandra Hart**

A cancer research scientist by profession, Alexandra is most acquainted with looking at the miniscule side of the world, through a microscope, a stark contrast to the times she documents the enormity of the universe through her telescope.



#### Seeing Through Turbulent Air

To reduce the effects of local air turbulence, photograph at the start or the end of the day. You can also make images over a large body of water like a lake, river or sea to get a stable picture.





#### **Martin Cohen**With over three decades

of experience, Cohen has won several accolades for his stills and cinema work that traverses several genres, including the PDN Award 1996 and the International Photography Awards 2004. He counts Henri Cartier-Bresson and Edouard Boubat as two of his greatest influences.





### TIP 6 Get Away from the Cities

A short trip will help you get away from light pollution, so that you can observe the nightsky and start practising. Once you are there, binoculars and simple telescopes that cost less than USD 100 on eBay are great devices to use.

"Almost a 100 frames and intense hunting with my binoculars helped me find the comet in the relatively bright sky that also showed the Earthshine."

The moon was my favourite subject when I started astrophotography It offers so much to see, experience and photograph. That said, the toughest subjects are the smaller and fainter ones, where you need longer focal length telescopes, longer exposures and better intuition to judge the perfect placement of the various elements.

Equipment: Nikon D300, Nikkor AF-D 180mm f/2.8 ED Exposure: 1/2 sec at f/4.5 (ISO 200)



Ignacio Diaz Bobillo He hails from Argentina and has a background in electrical and aerospace engineering. Ignacio has been interested in astronomy since he was a teenager.



Image Stacking is Underated
Photographers often take a single exposure of the Moon, given its brightness. The better way is to take multipe frames and then stack them. This preserves the tonality of the image and also enhances colour.

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"If the focal length is higher than a few hundred millimetres, the instabilities of the upper atmosphere perturb the image to a noticeable level."

Deep space astrophotography is limited in terms of composition; given that we are all stuck with a 'fixed' point of view: that of planet earth, and there is no such thing as 'illumination'. However, the few degrees of freedom that we are left with, namely field of view (choice of focal length) and camera orientation, are critical in achieving a beautiful and original final result.

Equipment: Canon EOS 1000D with an optical train and focal length 1500mm Exposure: A stack of 100 RAW Images shot at 1/160sec (ISO 400)



Teoh Hui Chieh
An engineer by
profession, Teoh is
passionate about
astronomy, and loves
making photographs
of landscapes with the
elements of the night sky.



The Sky Does Not Wait for Anyone While capturing the night sky, you will

night sky, you will
often work under
low light conditions.
Given the fact that the
sky is very dynamic
and time is crucial,
it is important to be
well versed with your
equipment in a way
that you can operate it
with your eyes shut.



Teoh Hui Chieh (www.mydarksky.org)

#### SHOOTING TECHNIQUE



Julie Fletcher
According to Julie,
her love for adventure
stems from her love
for Australia. With no
specialisation in
astronomy, she likes to
think of astrophotography
as a challenging subject
that helps her become a
better photographer.

"A flat tyre, an approaching storm and being in the middle of nowhere. The best pictures are often made in the most adverse conditions."

Having set up my camera in the lake, I spent almost two hours, photographing the stormy sky. All of a sudden, there was a lightning strike in the distance. I kept shooting, and as the clouds moved, I was stunned to see the Milky Way behind... I kept shooting until the storm approached. As it began to rain, I ran back to my car and watched an epic lightning show from inside.

Equipment: Nikon D800; Nikkor AF-S 14-24mm f/2.8G ED; ND Graduated Filter Exposure: 20sec at f/2.8 (ISO 2500)



#### You Can Never Research Enough

An understanding of the moon phases plays a huge role in what you can and cannot achieve. You can try Fluorescent or Tungsten White Balance to stabilise the colour of light pollution.

Julie Fletcher ( www.iuliefletcherphotography.co



Tanja Schmitz
She is the cofounder of photographingspace.com and has been shortlisted for the Astronomy
Photographer of the Year 2014 award.

#### "Eta Carinae nebula is in the final stages of its brief and eruptive lifespan, leading to an upcoming explosion as a titanic supernova."

Eta Carinae nebula (NGC3372) is a star-forming region in Sagittarius. This bright nebula is 9000 light years from Earth and surrounds the peculiar variable hypergiant star Eta Carinae, with overlying clouds of dark material. This image was shot using a mono sensor and processed using narrowband filters according to three different wavelengths of light, red green and blue. I colour corrected the image using the Hubble palette which happens to be the most commonly used colour palette in deep sky photography.

Equipment: Telescope: Officina Stellare Hiper APO 105; Camera: QSI683ws8 CCD Exposure: Shot over 6.16 hours using three different filters (Hydrogen Alpha: 170 minutes, Oxygen: 100 minutes and Sulphur: 100 minutes)

# No Compromises on the Final Image Photograph the object for as long as you can. Accumulation of additional datais always beneficial. The more data you possess in the end, will bring out more details in your image.



a Schmitz ( www.astrotan



Fred Herrmann
A former scientist and engineer with NASA,
Fred loves to explore and photograph the universe from his observatory.
Although he has mastered the art of shooting every deep space object, globular star clusters always fascinate him.





Celestial objects with faint details are the toughest to frame and focus. Dimmer the objects, higher is the requirement of data. If the focus is spot on, then the data is also in place. This, in the end, results in a perfect image.

"Thor's Helmet, an emission nebula in the constellation Canis Major, is 12,000 light years away from the earth."

I photographed this nebula from my backyard observatory in the foothills of the Appalachian mountains of North Alabama. Thor's Helmet also known as NC2359, spans a diameter of 30 light years. The star at the centre of this nebula is an extremely hot giant star thought to be in its presupernova stage of evolution. This type of star is known as a Wolf-Rayet star.

**Equipment:** Telescope: Ritchey Chretien 12 inch optic; Camera: SBIG STT-8300 mono; Filters: narrowband Hydrogen Alpha and RGB

Exposure: 10 hours



Rolf Wahl Olsen Interested in astronomy since 25 years, Rolf entered the field of astrophotography in 2003. He loves making exotic deep sky images from his observatory in Auckland, New Zealand.





#### The Telescope Mount is Crucial

For deep sky photography, buy the best telescope mount you can afford. A small telescope with accurate tracking will let you take better images than a larger telescope which does not track well.

"Postprocessing is like a delicate archaeological excavation where the astrophotographer must carefully uncover the buried treasures within the data."

I photographed this nebula by adding a Hydrogen Alpha filter. Through this process, I was able to show the Horschead silhouette and the dense molecular dust cloud from which it emerges. Throughout the dark cloud, both in and below the Horsehead, are several small glowing reddish patches. These are the feeble lights from new stars being born in the cloud.

**Equipment:** Telescope: 12.5" f/4 Serrurier Truss Newtonian; Camera: QSI 683wsg with Lodestar guider **Exposure**: Shot over 23 days across 3 years with a total exposure of 26 hours and 21 minutes



**Robert Gendler** A physician by profession, Robert Gendler has worked with NASA and has published five books on astronomy and astrophotography.

### "Did you know? The outer shell of the M57 planetary nebula expands at a rate of about 725km per century."

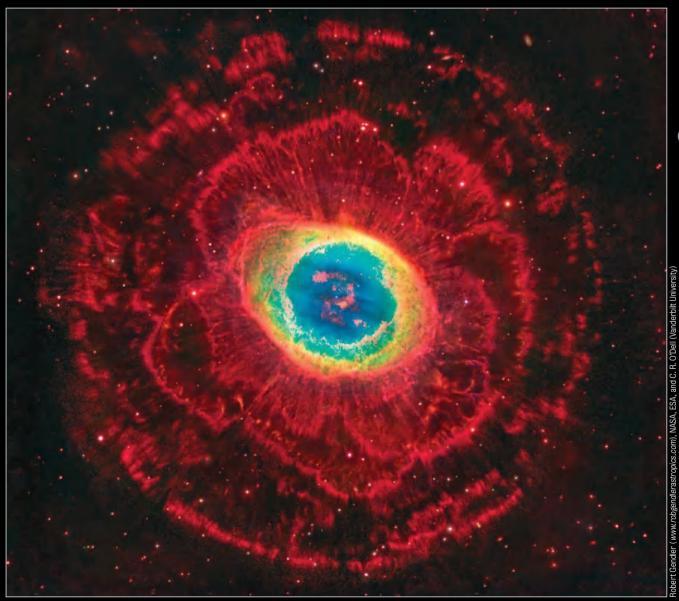
M57 is one of the brightest and largest of all planetary nebulae and has been studied extensively at multiple wavelengths. Although its shape appears to be spherical, its true structure is complex, consisting of a bright nebula core with multiple rings, a bright bilobed inner halo, and a faint outer halo.

Equipment: The Hubble Space Telescope (HST) gave an unparalleled resolution of the inner shell structure, the 8.2m Subaru Telescope provided details of the multiple shell structure of the dying star and the Large Binocular Telescope (LBT) provided 2.1 micron infrared data that gave a detailed signal from the faint outer shell.



#### The Benefits of Good Framing

For impactful deep sky images, you should try placing the object within your field of view, and if it does not fit the frame, then you can making a mosaic of the target.





• I have often been asked what has kept me inspired for the 20 years I have been shooting celestial bodies. To this, I respond that I enjoy making photos of what the eye finds difficult to see.

## Fly Me to the Moon

**Sébastien Lebrigand** talks about how he transforms an airplane into a space vessel, making its journey to the lunar landscape.

emember the scene from ET:
Extra Terrestrial, when ET launches the little boy to the moon? It is one of the most popular and celebrated movie stills which continues to invoke feelings of nostalgia and wonder amongst children and adult alike. People viewing my photographs also have a similar feeling, and I often receive comments comparing my images to the famous scene from the movie.

#### **My Assignment**

#### Descriptio

Depicting unusual airplane journeys.

#### Duration

This is an ongoing body of work, which I started shooting in 2013.

#### Notes

I did not travel to different locations to make the photographs. In fact, I used my garden as a setting ground for the project.

#### **My Perspective**

However, the movie wasn't the inspiration behind the series. Instead, it was a lucky coincidence. I remember being occupied framing my shot of the moon, when on my camera's display, I noticed an airplane whizzing past it. It was quite an unexpected moment and I quickly made a few photographs. Later, upon viewing them, I realised that there was certainly an element of uniqueness to the images.

This was to be the beginning of the series. Eventually, I also began photographing the sun, with the airplane in the foreground, and this made a wonderful addition to the series.

#### **The Process**

As much as I enjoy shooting for the series, the entire process can be taxing. In order to get the right shot, I have to be extremely patient and prevent myself from rushing • I spend a minimum of three hours every time I go out to shoot, and usually only end up with one to two images, owing to the quickness of the entire process. The difficulty is what pleases me the most.



**W** 

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• To photograph the sun, I usually set the exposure to about 1/8000 sec, and use a Neutral Density filter on my lens to protect it from the harmful rays of the sun. This gives me an exposure equivalent, which is four stops lower.

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into photographing the moment. But at the same time, I have to be quick too, as the airplane takes a fraction of a second to fly across the width of the moon. This gives me barely any time to get my shot. Therefore, knowing when to press the



O I like that my photographs appear like distortions of scale and perspective. I think this is what lends a fun and space-like feel to the photographs.

#### **My Equipment**

I use a 600mm telescope attached to a Canon EOS 60D camera, along with a 106mm refractor.

#### Tips on Making Timeless Photographs of the Moon

- Shooting at Twilight: Photographing at this time will ensure that there is sufficient ambient light to capture the moon and the landscape. The impressive orange and violet shades in the sky will also lend drama.
- Embracing Clouds: Don't think you cannot shoot on a cloudy night. The full moon enveloped in a light cloud cover can lead to surreal photos.
- Playing with Size: To make the moon appear disproportionately bigger than its surroundings, use a longer focal length. Inversely, a shorter focal length will make the moon appear smaller and more distant from any foreground elements.

shutter is definitely a little tricky, but can be easily learned with lots of practice.

Another aspect that I need to keep in mind, before I set out to shoot, is the weather, and ensure that it's not windy or that the sky is not cloudy. Aside from this, the only thing left is to cross my finger and hope that the airplane passages of the day are not irregular, so that I don't waste time sitting idle, waiting for a plane to appear. However, there are instances where the

conditions are so unfavourable that I have to wait for a month to get the desired image.

While I have received ample of praise for the series, there have been an equal number of people accusing me of manipulating the images in Photoshop. To be honest, I am not very familiar with the image editing software! In fact, I only go as far as cropping and increasing contrast, so that my photographs are as close to what the human eye sees.

- As told to Conchita Fernandes

To view more of Sebastien's work, you can visit his Flickr www.flickr.com/photos/77035235@N04

For most astro-based photographers, an airplane passing the moon may not seem interesting enough. For me, it's a great opportunity.

the flight path of the local airport, you will always find me out in my garden shooting pictures of the moon.

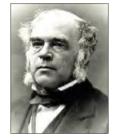
O Since I reside along



## ShowGase

### The First Stargazers of Our Time

"...I have loved the stars too fondly to be fearful of the night..." wrote Sarah Williams in *The Old Astronomer to His Pupil*. Natasha Desai looks back at 12 pioneers who looked to the skies with wonder and paved the way for astrophotography today.



(1811-1882)

#### John William Draper: The First Astrophotographer





ohn William Draper was the first man to successfully photograph the Moon. A feat considering this was the winter after Louis Daguerre invented the daguerreotype. While Draper would eventually be known as a scientist, historian, philosopher, chemist, physician apart from his photographic achievement, he will always be the first to capture the Moon and begin man's journey in astrophotography.

An immigrant from England in America when the daguerreotype reached the shores of America in 1839, he was one of the first to attempt a portrait with the process, but, was beaten to it by Alexander Wolcott. He did, however make the first clear portrait of a woman.

Draper's photograph of the Moon was revolutionary for its time as it opened

the doors for photography to be used as a tool in the field of astronomy. Draper's legacy was carried on through his second son, Henry Draper, who went on to make successful breakthroughs in astrophotography. His niece, Antonia Maury went on to be a part of the famous 'Harvard's Computers' at the Harvard College Observatory.

Apart from this famous contribution, Draper was an ardent voice of science over religion. He published several books during his lifetime but his *History of the Conflict Between Religion and Science*, was the most popular. Ironical, considering his father was a Methodist preacher. But, at the same time encouraged his son's interest in science.

Sadly enough, the original daguerreotype was destroyed in a fire.

Oraper is credited with being the first to make a clear image of a woman—his sister Dorothy Draper—the image on the right. The exposure lasting 65 seconds is said to be the oldest surviving portrait today. On the right, is Draper's daguerreotype of the Moon, which was a 20 minute exposure.

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PHOTOFEATURE

Our Glorious Planet

Vistas of our blue world

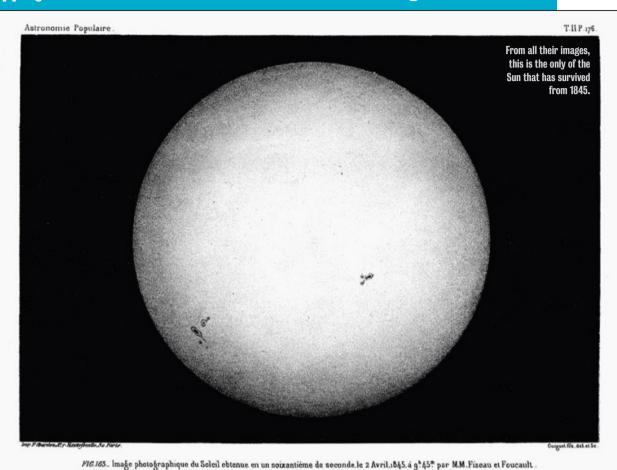
byastronauts from space



YOUR PICTURES
Hues of red shot in a
multitiude of ways
byyou, the reader



#### Hippolyte Fizeau and Léon Foucault: The First Image of the Sun





Hippolyte Fizeau (1819-1896)

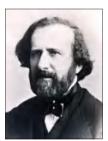
oth leading French physicists of their time, Hippolyte Fizeau and Léon Foucault were collaborators on various significant scientific experiments, but, go down in history as the first to make images of our closest star, the Sun.

After John William Draper's successful daguerreotypes of the Moon, Fizeau-Foucault are credited with the next milestone in astrophotography. As daguerreotypes take several minutes to make, they modified and made improvements to the photographic process in order to make a 1/60th exposure of the Sun.

However, their work on the measurement of the speed of light is far more recognised. They began collaborating on the experiment but had a falling out after a few years.
Fizeau went on to play a part in the discovery of the Doppler effect and made several other scientific contributions.

Foucault's findings about the measurement of the speed of light in water, contradicted Newton's corpuscular theory of light. His most famous acheivement, however, is the Foucault's Pendulum which demonstrated the rotation of the Earth.

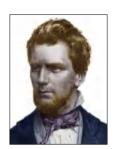
The names of both Fizeau and Focault are inscribed as the base of the Eiffel Tower, along with 70 other French scientists and engineers of the time. From those 72, Fizeau was the only one who lived to see his name when the Tower was unveiled in the World's Fair in 1889. He also has a crater named after him on the far side of the Moon.



Léon Foucault (1819-1868)

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#### John Adams Whipple: The First Image of Jupiter



(1822-1891)



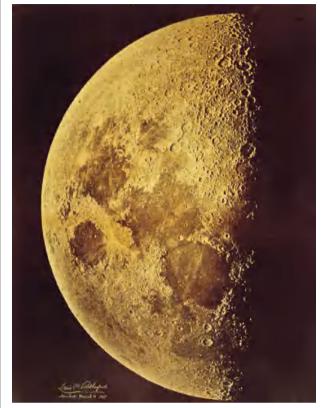
Whipple was the first to make images of Vega, which were the first of any star other than the Sun.

ohn Whipple's association with photography began with he being the first to manufacture the chemicals needed for daguerreotypes in the United States. He soon turned to photography and began his work as a daguerreotypist at the Harvard College Observatory and was of the most famous portraitists in Boston.

He produced his award-winning images of the Moon from 1841-1860 using daguerreotypes and crystallotypes Interestingly, he is said to be the first to make images of Jupiter, 30 years before the first clear images came out and were mentioned by astronomer G P Bond in an important paper published in 1860. However, none of these images survived.

This is one of the images that won him an award in 1851 at the Great Exhibition held at the Crystal Palace in London.

#### Lewis Morris Rutherfurd: The First Attempt at Classifying Stars







(1816-1892)

lthough he began as an astrophysicist, Rutherfurd also practiced law in the United States. He had an observatory in New York in 1856, where he made his most detailed pictures of the Moon. Being unsatisfied with using a regular telescope for his photographs, he began experimenting with different lens systems. In 1860, he devised a telescope specifically for the use of astrophotography and managed to photograph a solar eclipse with it.

He continued his research in astronomy and made the first attempt to classify stars according to their spectra in 1863, which played a huge part in the field of spectroscopy. Over the course of his experiments, Rutherfurd began photographing and cataloguing the night skies. He invented the micrometer, which he used to measure stellar positions on photographic plates. The instrument still has various mechanical engineering and metrological applications today. Rutherfurd also invented a machine to measure diffraction grating as well as found a way of treating film to increase its stability.

As a trustee at Columbia University (then Columbia College) he set up the departments of geodesy and practical astronomy in 1881, and donated all his findings, records and equipment to them. • Rutherfurd used wet plates, and discovered that brighter portions of the Moon must have shorter exposures.



#### **Edward Charles Pickering:** The Creation of Harvards Computers



(1846-1919)



Pickering,
irritated with his
male assistants'
mistakes and
carelessness,
fired them and
hired his maid
to their job. She

dward Charles Pickering's tenure as the director of the Harvard College Observatory beginning in 1885, contributed greatly to the understanding of cosmological distances, through his team's findings in stellar spectra. A progressive thinker, Pickering applied photography to map the skies, instead of just using recorded observations which further solidified the importance that astrophotography was gaining. In 1882, he put a large prism in front of the photographic plate which enabled him to photograph the spectra of multiple stars simultaneously. He is most famously known for putting together the 'Harvard Computers', a group of over 80 women who made the path breaking findings and laying the foundation for spectral classification today.

Willamina Fleming, who at the time worked as the house help in Pickering's mansion, was brought on as his assistant at the Harvard College Observatory. Her efficiency led Pickering to put her in charge of a large group of women who worked at analyzing and computing the data that the Observatory collected, and she worked there for 34 years. After 20 years she was made the Curator of Astronomical Photos.

The women in his team went on to make several important discoveries by themselves. For example, Annie Cannon's system for classifying stars, a redesign of the system made by Antonia Maury, is used even today. At the time however, credit was hard to come by for them, simply because women were not considered important enough. These group of women were often called 'Pickering's Harem' by the scientific community, further demonstrating how little value was given to them.

He has a crater on the Moon and Mars named after him and his younger brother William Henry Pickering, an astronomer as well. They also have an asteroid 784 Pickeringia named after them. O Pickering was revolutionary for his time. The 80 women that worked for him, produced work that paved the way for categorising and cataloguing the sky. It was only because of them that Pickering was able to achieve this. He published the **Henry Draper Catalogue** with their work which had over 400,000 stars classified according to their spectra.

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went on to be

the Curator of

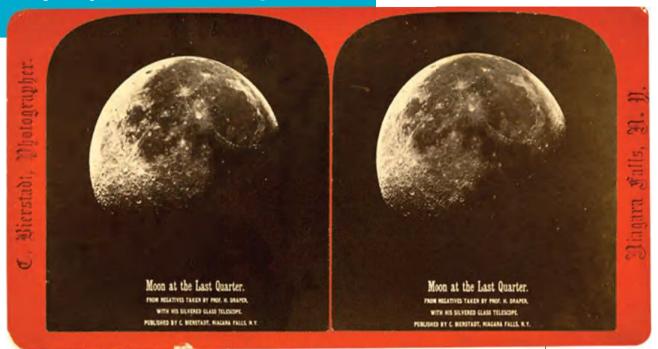
**Astronomical** 

Photos at the

Observatory.

**Harvard College** 

#### Henry Draper: The First Image of Orion





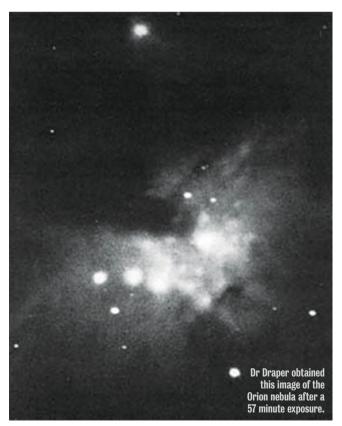
(1837-1882)

enry Draper, by profession was a doctor and later in his life was a professor and the dean of medicine at New York University. His interest in astrophotography began as a teenager when he assisted his father John William Draper. Along with his career in medicine, Henry Draper kept his interest and research in astrophotography alive. He made several photographs of the Moon in 1863, along with pictures of the Sun, Mars, Venus and Jupiter. He even made an expedition to capture the transit of Venus in 1874. Most notably, Draper was known for making the first photograph of an astronomical nebula, the Great Orion Nebula in 1880. While it was not the best or the clearest, it was the first. And this led to several others after him to attempt the same.

He also made the first stellar spectrum photograph of the comet Vega in 1872 along with the first wide-angle photograph of the comet's tail and head in 1881. This led to the beginnings of the Henry Draper Catalogue of star's spectra, which was taken forward by Edward Charles Pickering and Willamina Fleming at the Harvard College Observatory. He made over a 100 images of star spectra right up to his death in 1882, at the age of 45. His widow, established the Henry Draper Memorial to further photographic research in the field of astronomy.

Under this memorial, the Henry Draper Catalogue, which was a photographic stellar spectrum of stars and is used even today. It was completed by Edward Charles Pickering and his team at the Harvard College Observatory.

• These two images of the last quarter of the Moon were used to make 3D cards of the Moon, the first of their kind made of an object in space in the 1800s.



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#### Andrew Ainslie Common: The First Clear Picture of Orion



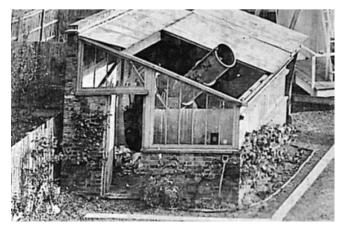


(1841-1903)

ndrew Ainslie Common made a significant contribution to astrophotography, even as an amateur. His interest in it led him to make the first clear picture of the Orion Nebula in 1883, after Henry Draper. The details that were visible in the image made it clear that photography had the ability to record stars and other details that would be invisible to the human eye. He made images of the Orion Nebula and other satellites of Mars and Saturn during 1880–1884 with a 36-inch reflector.

This exploration of his led to him being awarded a Gold Medal in 1884 by the Royal Astronomical Society, of which he was a member. He was also the president at the Society from 1895–1896. In 1885, he built a 60-inch Newton reflecting telescope which

was later installed in the Harvard College Observatory, after his death. Towards the last decade of his life, he was involved in designing telescopes and optical objects for the Royal Navy. • This is the image of the 18-inch refractor in his backyard that was used for his early experiments with astrophotography.



#### William Henry Pickering: The Discovery of Saturn's Ninth Satellite





(1858-1938)

he younger brother of Edward
Charles Pickering, William
Henry Pickering most famously
discovered Saturn's ninth satellite,
Phoebe and observed its rotation to
be in the opposite direction from the other
satellites. His subsequent announcement
of the discovery of Themis, Saturn's 10th
satellite was dismissed, as it was never
observed again. He even charted and gave
the position of an object beyond Neptune,
which eventually led to the finding of Pluto.

He was responsible for establishing several observatories and stations with his brother, Edward Charles Pickering, including Percival Lowell's Flagstaff Observatory, where Pluto was eventually discovered. Pickering led several expeditions to study solar eclipses and craters on the Moon.

Although he began his research in stellar photography, his study surrounded planets and the Moon, unlike his brother. In 1903, he published *The Moon: A Summary of the Existing Knowledge of our Satellite* which showed different areas of the Moon in different phases aiding several people in lunar studies.

His image of Orion's Belt, led to the discovery of the Horsehead Nebula in 1888, by Williamina Fleming, a part of his brother's team working at the Harvard College Observatory. Earlier, Pickering has dismissed the Horsehead Nebula as a dark obscuring matter in the image. Sadly enough, both Fleming and Pickering were denied credit to this discovery until much later in 1908.

After his retirement he continued his work from an observatory in Jamaica.

This 90 minute exposure of the Orion nebula, was one of his most important images as it led to Williamina Fleming of the Harvard Computers discovering the Horsehead Nebula.

FEBRUARY 2016 BETTER PHOTOGRAPHY

#### Edward Emerson Barnard: The Comet Hunter



(1857-1923)

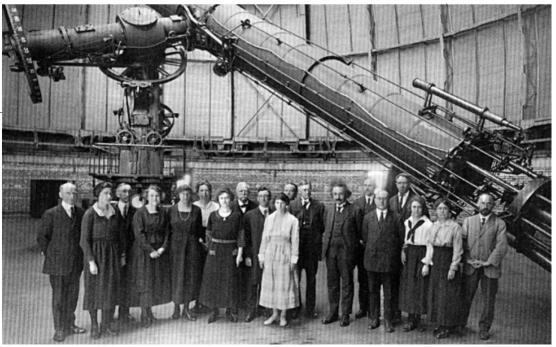




ne of the greatest astronomers of the 19th century, Edward Emerson Barnard was tireless in his study of the night skies. By the age of 30, he had discovered 10 comets and the fifth moon of Jupiter, Amalthea. This was the last visual discovery by any astronomer as all further discoveries were made through photography and spacecraft imagery. At the Lick Observatory, he also discovered a

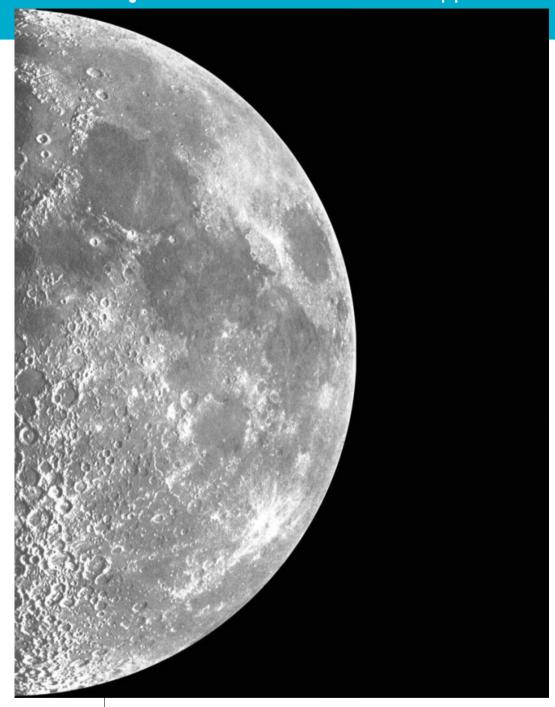
comet through photography, being the first to do so. Overall, he discovered over 15 comets in his lifetime. In 1916, he discovered a faint star, which is the second nearest star system to ours after the Alpha Centauri. He catalogued various dark nebulae, known as Barnard's objects beginning from Barnard 1 to Barnard 370. He has craters on the Moon and Mars named after him along with a mountain, galaxy, an asteroid, a star, an emission nebula and a region on Jupiter.

• At the age of 17, he taught himself astronomy and even built his own telescope. At the age of 25, he had discovered two comets, owing to a five-inch refractor that he bought.



At the Yerkes Observatory, where he was able to use their 40inch refractor, he made thousands of stunning images of the Milky Way which were published in his Atlas of Selected Regions of the Milky Way. Unfortunately, he died before the book was published. It was completed by his niece Mary Calvert who had been his associate for over 20 years. He is pictured here on the day Albert Einstein visited the Yerkes Observatory.

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Maurice Loewy (1833-1907)



Pierre Puiseux (1855-1928)

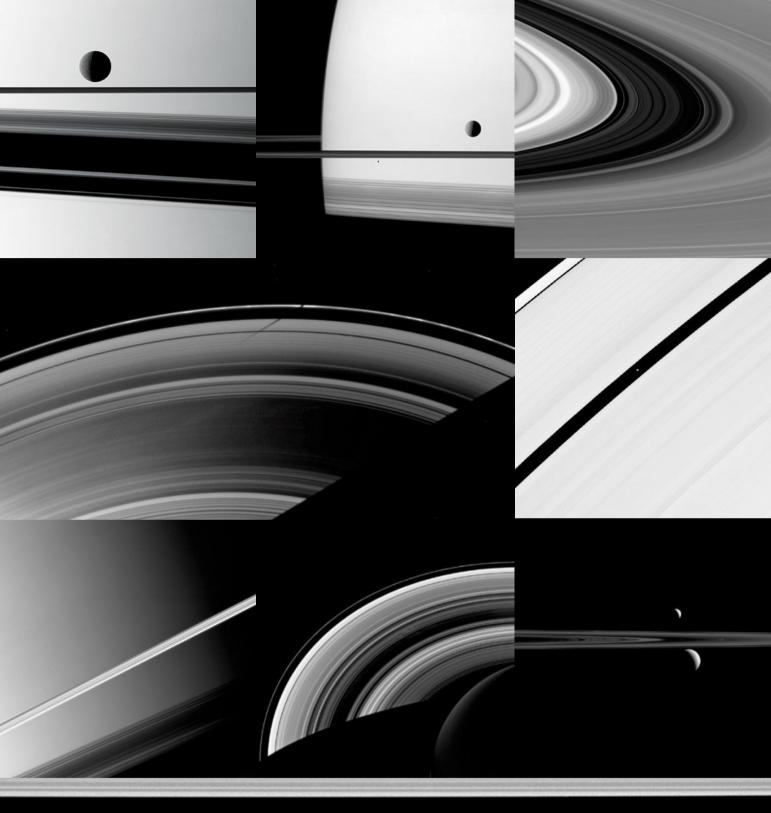
The few copies that do exist of the Atlas Photographique de La Lune are sold for over USD 5000 (approx. Rs. 3,38,000) he two collaborators could not have come from more different backgrounds. Moritz Maurice Loewy and his family escaped persecution for being Jewish to Vienna, while Pierre Puiseux grew up in Paris and was educated at the prestigious École Normale Supérieure.

They both began working at the Paris Observatory from 1894 and 1910, and made over 6000 images of the Moon. Ultimately, these photographs were used to produce *Atlas Photographique de La Lune*, a visually stunning atlas of the Moon. The details of the Moon's craters and dark spots were unlike any other produced until then.

For over fifty years, the Atlas remained as the best and finest collection of images of the Moon, surpassed only when Lunar Orbiter made images of the Moon. Unfortunately, hardly any copies of this path breaking book remain today.

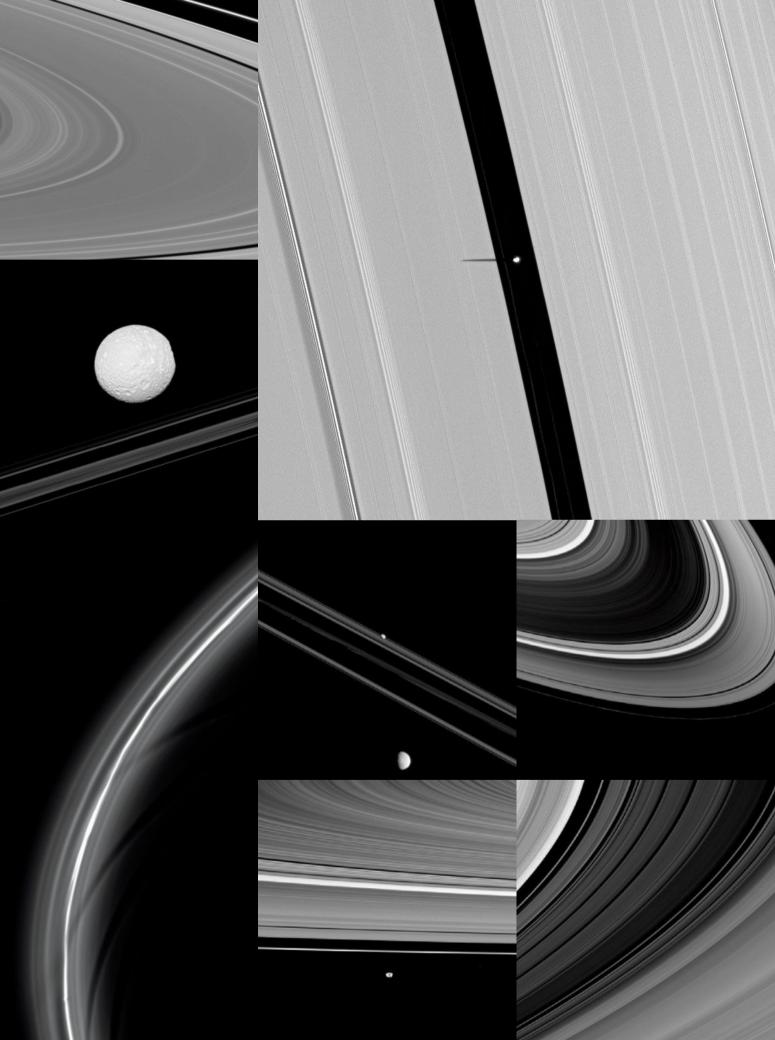
Maurice Loewy invented many astronomical instruments, including an elbow-telescope, with which he made the images of the Moon with Puiseux.

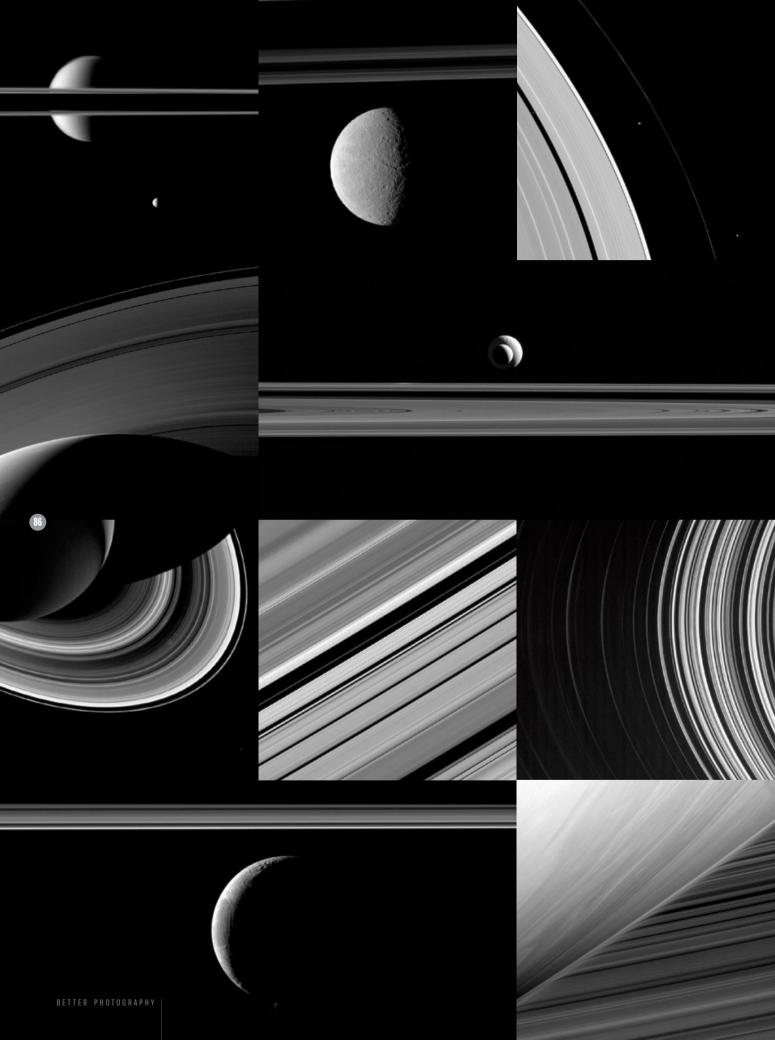
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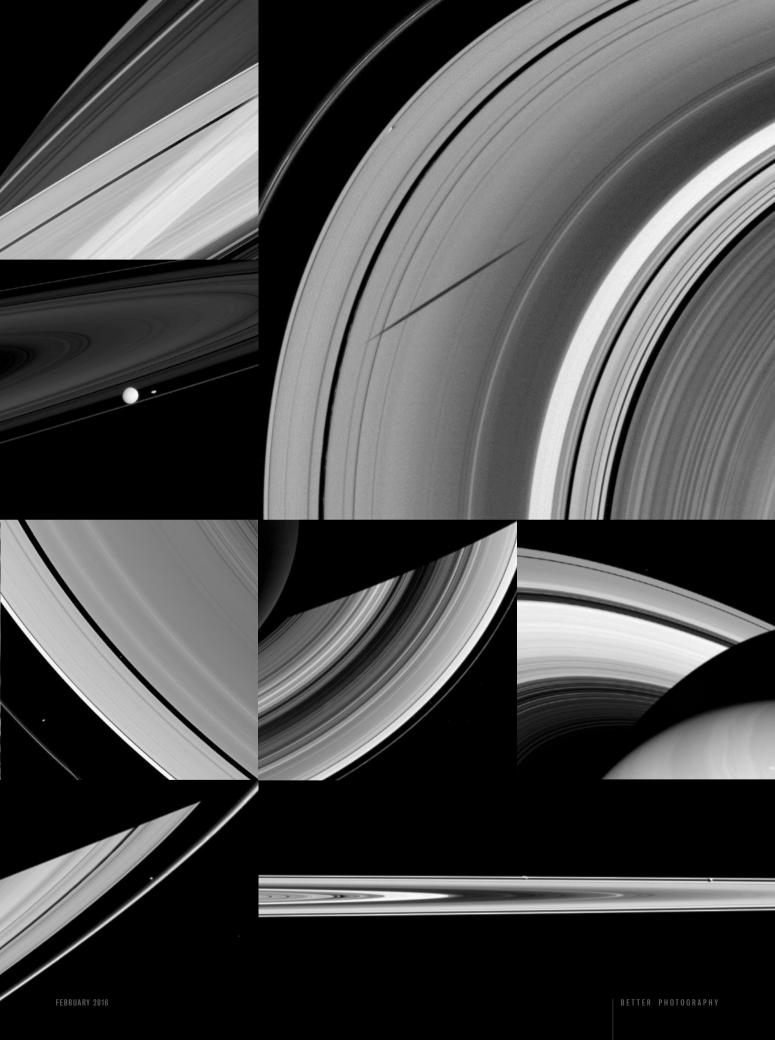


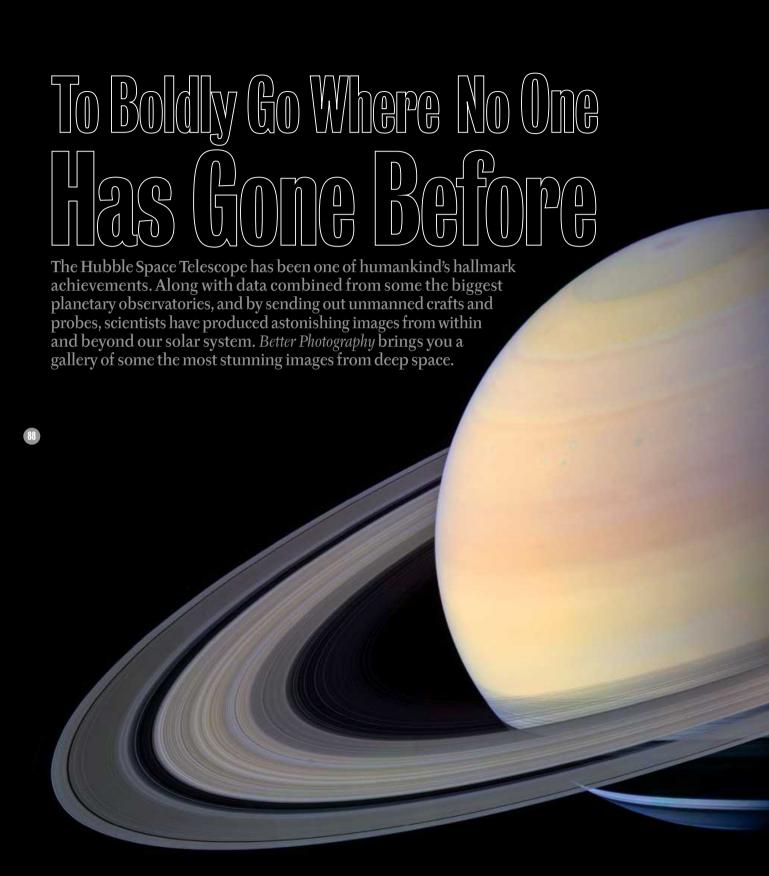
## Cassini's Magnum Opus

Cassini, an unmanned spacecraft, entered Saturn's system in 2004. In 2016, it begins its 'Grand Finale', a set of daring orbits, skirting the rings and upper atmosphere. In the meanwhile, it continues to prove that Saturn is indeed the artist amongst planets. All photographs by NASA/JPL/Space Science Institute and Caltech.









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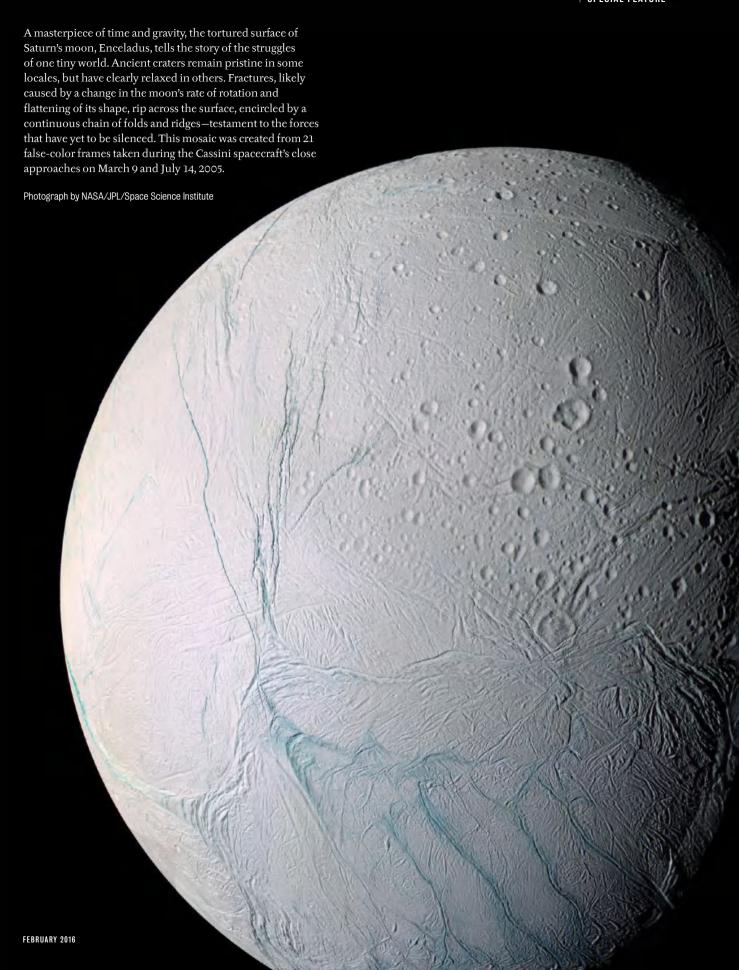


Image Composition: Mattias Malmer Images by Cassini, Cassini Imaging Team, NASA/JPL-Caltech/Space Science Institute

spans the gorgeous gas giant from ring tip to ring tip.

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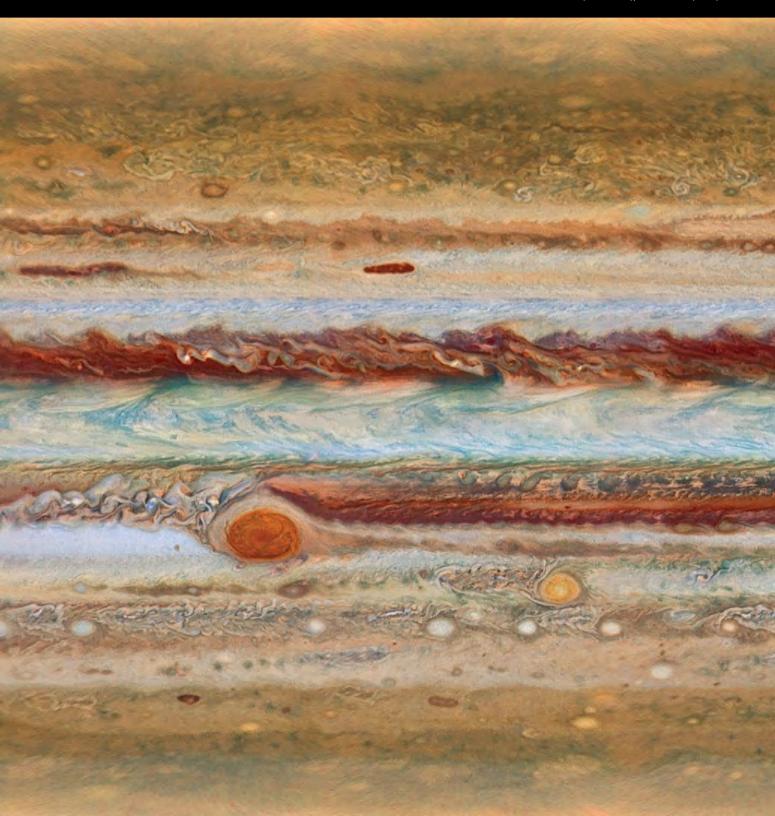


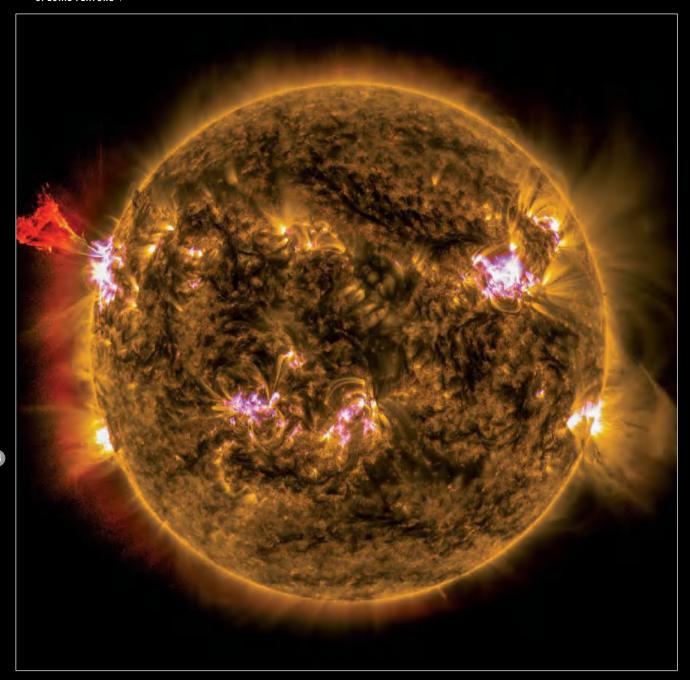


#### SPECIAL FEATURE

Jupiter, our resident gas giant, has 2.5 times the mass of all the other planets combined. Made on October 15, 2015, this is the first in a series of annual portraits of Jupiter. These new maps show rare wave patterns in the planets atmosphere, weather systems, and changes its famous Great Red Spot. The 'spot' is a 300 year-old cyclonic storm with winds reaching 570km per hour, which can swallow the whole of Earth twice over. The wave structure in the planet's atmosphere has not been seen for decades.

Photograph by NASA, ESA/Hubble, A. Simon (GSFC), M. Wong (UC Berkeley), G. Orton (JPL-Caltech), and G. Bacon (STScI)

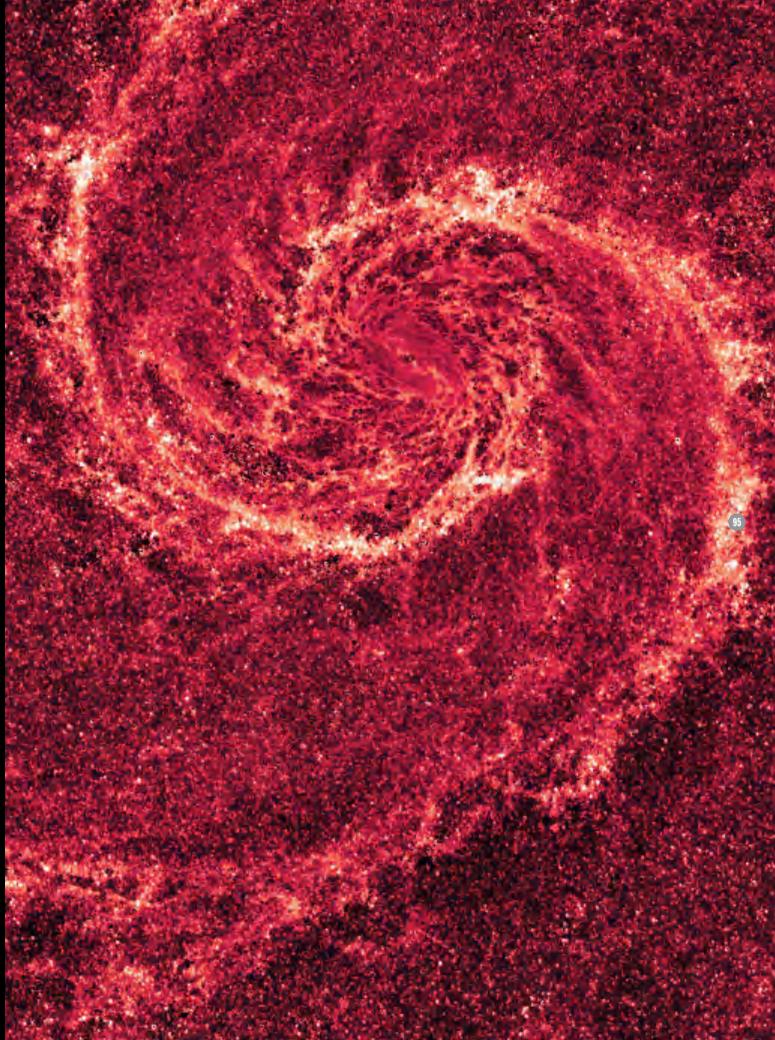




A burst of solar material leaps off the left side of the sun in what's known as a prominence eruption. A solar flare is an intense burst of radiation coming from the release of magnetic energy associated with sunspots. Flares are our solar system's largest explosive events. They are seen as bright areas on the sun and they can last from minutes to hours. Harmful radiation from a flare cannot pass through Earth's atmosphere to physically affect humans. However, when intense enough, they can disturb the atmosphere in the layer where GPS and communications signals travel, disrupting it. This image combines three images from NASA's Solar Dynamics Observatory, and was captured on May 3, 2013. It is a M5.7-class flare, and the weakest, but can cause some space weather effects near Earth. It occurred just as another M-class solar flare from the same region was subsiding.

How do spiral galaxies form stars? To help find out, the Hubble Space Telescope imaged the rather photogenic Whirlpool galaxy M51 in infrared light. It highlighted dust that traced the dense gas that best forms stars. To further isolate the dust, much of the optical light from stars has also been digitally removed. The resulting image shows swirling and intricate patterns on the longest scales, while numerous bright clumps of previously hidden open star clusters appear on the smaller scales.

Photograph by NASA, ESA, M. Regan & B. Whitmore (STScI), & R. Chandar (U. Toledo)







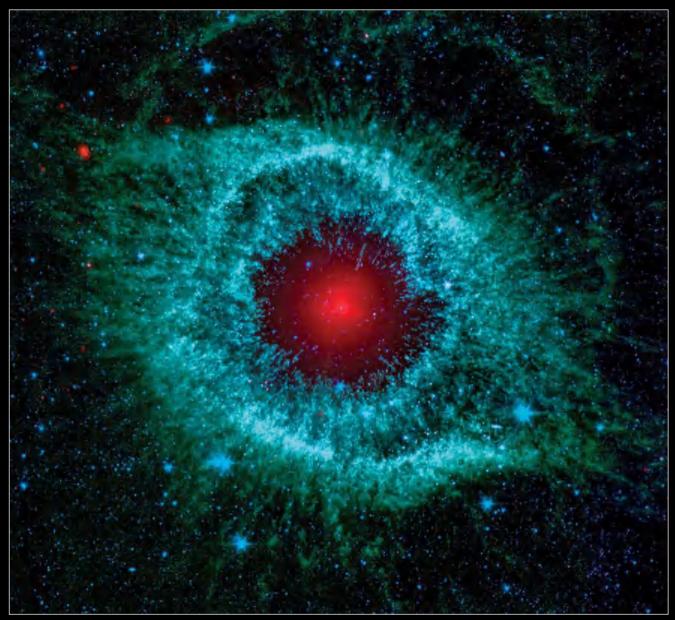
The three impressive towers of gas clouds are part of the Eagle Nebula or Messier 16, known as the 'Pillars of Creation'. Within the wispy silhouettes, newborn stars can be seen hidden in the cloud. Despite its name, this photograph, shot in infrared and visible light, also hints at massive destructive forces. The dust and gas in these pillars is seared by intense radiation from the young stars, and eroded by strong winds from massive nearby stars, causing the ghostly bluish haze. At the top edge of the left-hand pillar, a gaseous fragment has been heated up and is flying away.

Photo by NASA, ESA/Hubble, and the Hubble Heritage Team

The larger of the spiral galaxies, known as UGC 1810, has a disk that is distorted into a rose-like shape by the gravitational tidal pull of the companion galaxy below it, known as UGC 1813. A swath of blue jewels across the top is the combined light from clusters of intensely bright, hot, massive, young blue stars. The smaller, nearly edge-on companion shows distinct signs of intense star formation at its nucleus, perhaps triggered by the encounter. A possible mini-spiral may be visible in the spiral arms of UGC 1810 to the upper right, which is changing its character at the point of intersection.

Photo by NASA, ESA, and the Hubble Heritage Team (STScI/AURA)





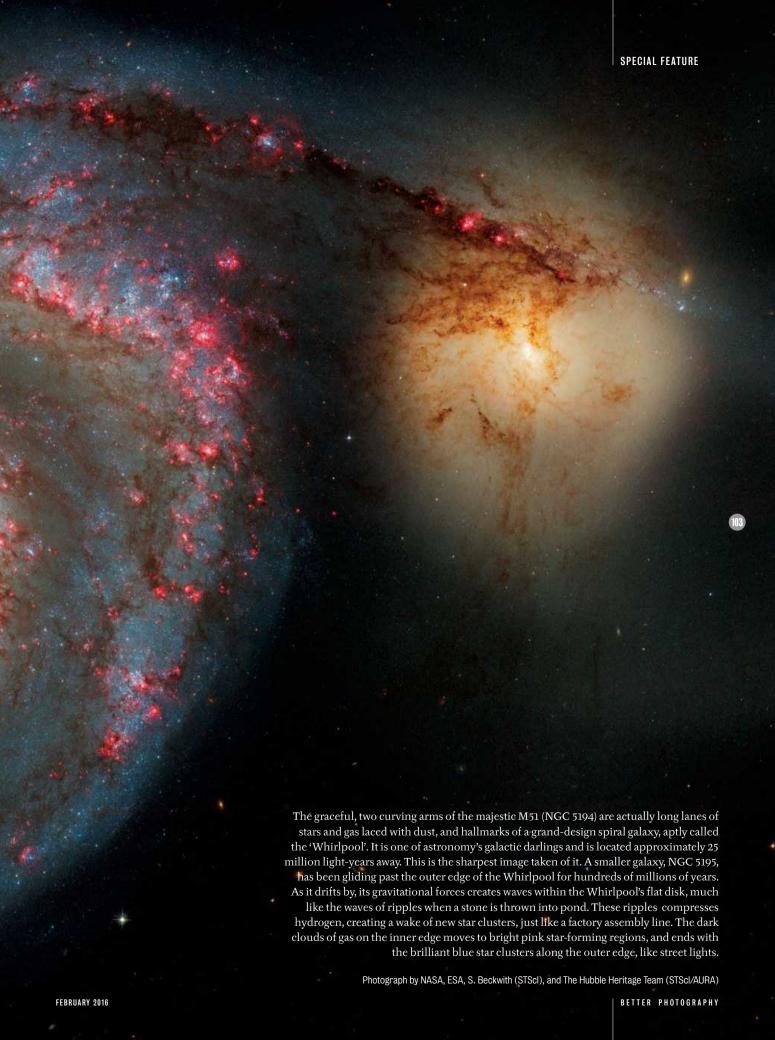
Around 370 light years away, the young giant star Zeta Ophiuchi (six times hotter, eight times wider, 20 times more massive, and about 80,000 times brighter than our sun) is sending shockwaves across surrounding dust and gas clouds, even as it punches through at 24km a second. Because of this motion, it creates a spectacular bow shock ahead of its direction of travel (to the left). The structure is analogous to the ripples that precede the bow of a ship as it moves through the water, or the sonic boom of an airplane hitting supersonic speeds. Stellar winds flowing out from this fast-moving star are making ripples in the dust as it approaches. Despite its brightness, it can only be seen in infrared light through NASA's Spitzer Space Telescope, because of dust clouds in the foreground.

This infrared image from NASA's Spitzer Space Telescope shows the Helix nebula, a planetary nebula photographed by amateur astronomers for its vivid colors and resemblance to a giant eye. Located about 700 light-years away in the constellation Aquarius, this colorful gem was named for its resemblance to systems with planets like Jupiter. Planetary nebulae are the remains of stars that once looked a lot like our sun. When stars like our sun die, they puff out their outer gaseous layers. These layers are heated by the hot core of the dead star, called a white dwarf, and shine with infrared and visible colors. Our own sun will blossom into a planetary nebula when it dies in about five billion years. In Spitzer's view of Helix, the eye looks like that of a green monster. Infrared light from the outer gaseous layers is represented in blues and greens. The white dwarf is visible as a tiny white dot in the center of the picture. The red color in the middle of the eye denotes the final layers of gas blown out when the star died. The brighter red circle in the very center is the glow of a dusty disk circling the white dwarf.









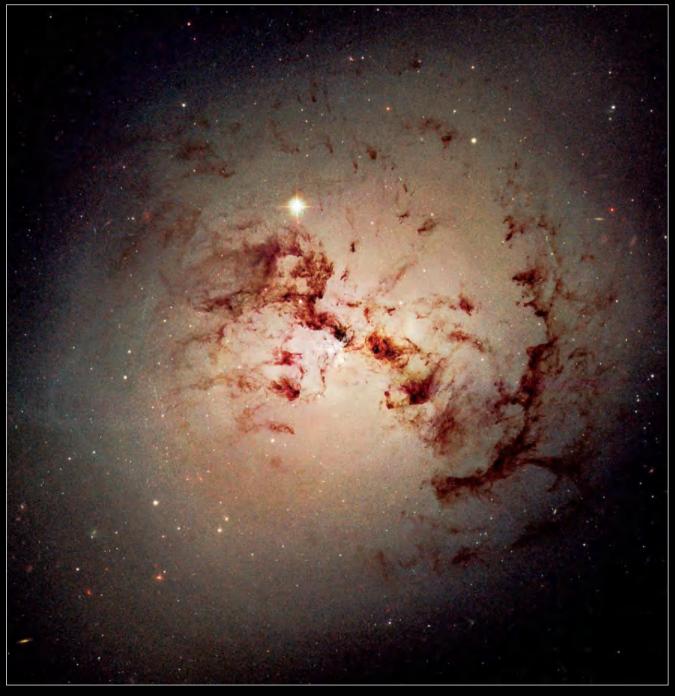


A butterfly emerges from stellar demise in planetary nebula NGC 6302, but it is far from serene. The dainty wings are roiling cauldrons of gas heated to 20,000° C. The gas is tearing across space at more than 9,50,000km per hour—fast enough to travel from Earth to the moon in 24 minutes flat. A dying star that was once about five times the mass of our Sun is at the centre of this fury. The central star itself cannot be seen, because it is hidden within a doughnut-shaped ring of dust. Its surface temperature is over 2,20,000° C, making it one of the hottest stars within our galaxy.

Photograph by NASA, ESA and the Hubble SM4 ERO Team

Surprisingly complex loops and blobs of cosmic dust lie hidden in the giant elliptical galaxy NGC 1316. Situated about 75 million light years away, it is on the outskirts of a 'nearby' cluster of galaxies in the southern constellation of Fornax. In a photographic sense, anything we see of the galaxy today has occurred 75 million years ago, which is actually quite miniscule in an universal sense. The dust lanes and star clusters of this giant give evidence that it was formed by a huge collision of two gas rich spiral galaxies that merged together a few billion years ago, to shape NGC 1316 as it appears today.

Photograph by NASA, ESA, and The Hubble Heritage Team (STScl/AURA)



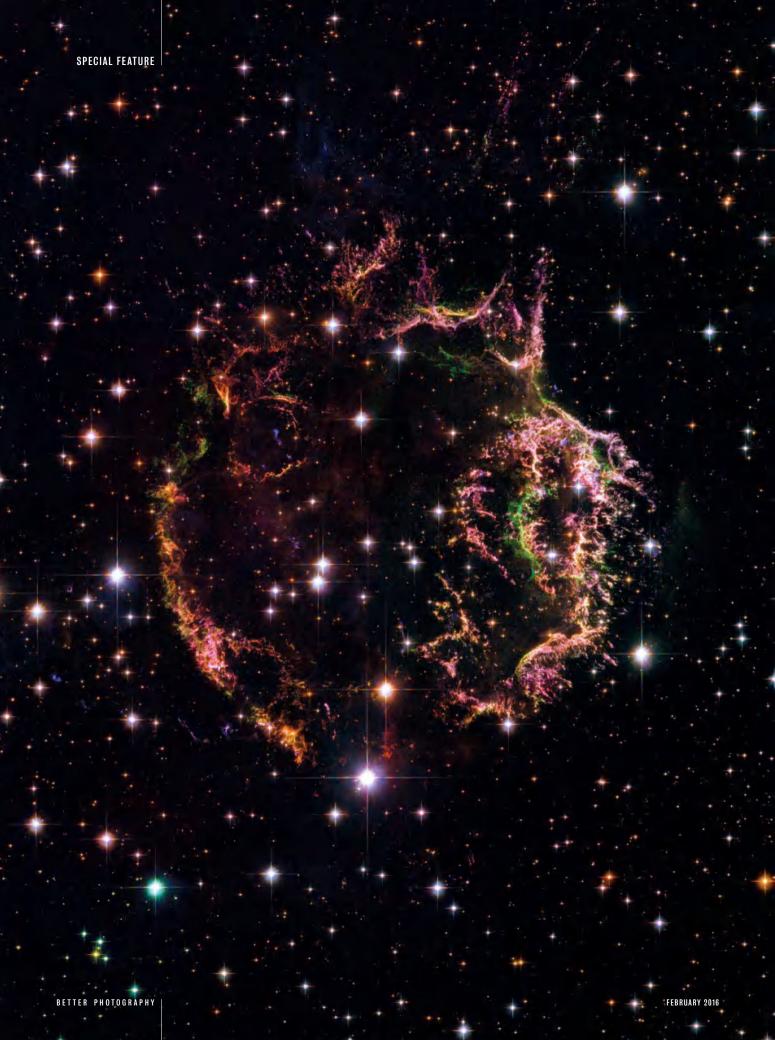
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## SPECIAL FEATURE Deriving its name from its delicate, draped filamentary structures, the beautiful Veil Nebula is one of the best-known supernova remnants. It formed from the violent death of a star, twenty times the mass of our sun, that exploded about 8000 years ago. Located 2100 light-years from Earth in the constellation of Cygnus (The Swan), this brightly coloured cloud of glowing debris spans 110 light years. The movement of some of its delicate structures is clearly visible—particularly the red hydrogen filaments, one of which meanders through the middle of the brighter features that dominate the image. The Veil Nebula's colourful appearance is generated by variations in the temperatures and densities of the chemical elements present. Photograph by NASA, ESA, Hubble Heritage Team BETTER PHOTOGRA FEBRUARY 2016







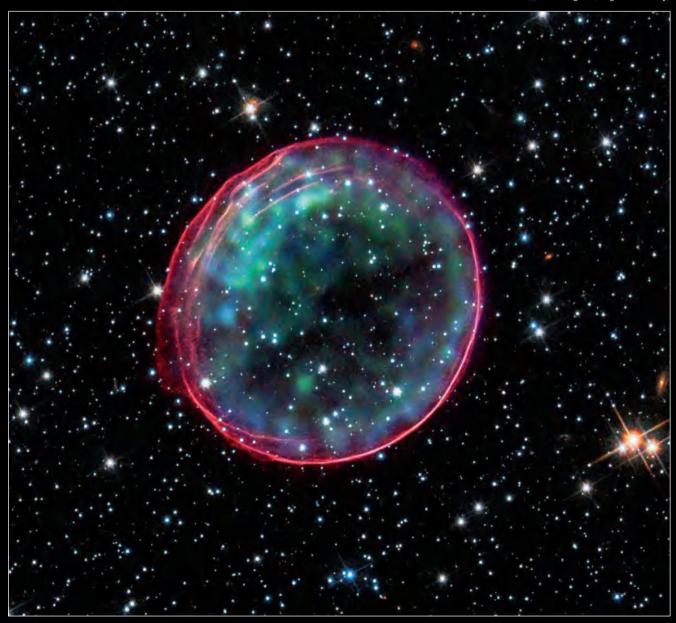


This torn, tattered but incredibly beautiful form is what remains of a violent supernova explosion known as Cassiopeia A (Cas A) 10,000 light years away. It is the youngest known remnant from a supernova in the Milky Way (about 350 years old) even as the massive star collapsd under the weight of its own gravity. This 2006 photograph, a composite made from 18 separate images, shows the complex and intricate structure of the star's shattered fragments of a ring of bright, broken filamentary and clumpy stellar ejecta. The huge swirls of debris glow with the heat generated by the passage of a shockwave from the blast, briefly outshining its entire parent galaxy. The various colours of the gaseous shards indicate differences in chemical composition. Bright green filaments are rich in oxygen, red and purple are sulphur, and blue are mostly of hydrogen and nitrogen.

Photograph by NASA, ESA, and the Hubble Heritage (STScI/AURA)-ESA/Hubble Collaboration

A longstanding mystery on the progenitor that caused a supernova in a nearby galaxy was solved in January 2012. Previous observations from ground-based telescopes hinted that a kind of supernova, called a Type Ia created a remnant named SNR 0509-67.5, which lies 170,000 light-years away in the Large Magellanic Cloud galaxy. The type of system that leads to this kind of supernova explosion has long been a high importance problem with no decisive answer. All the solutions involve a white dwarf star that somehow increases in mass to the highest limit. Astronomers failed to find any companion star near the center of the remnant in the photograph, and this ruled out all but one solution... that this one Type Ia supernova came from a pair of white dwarfs in close orbit!

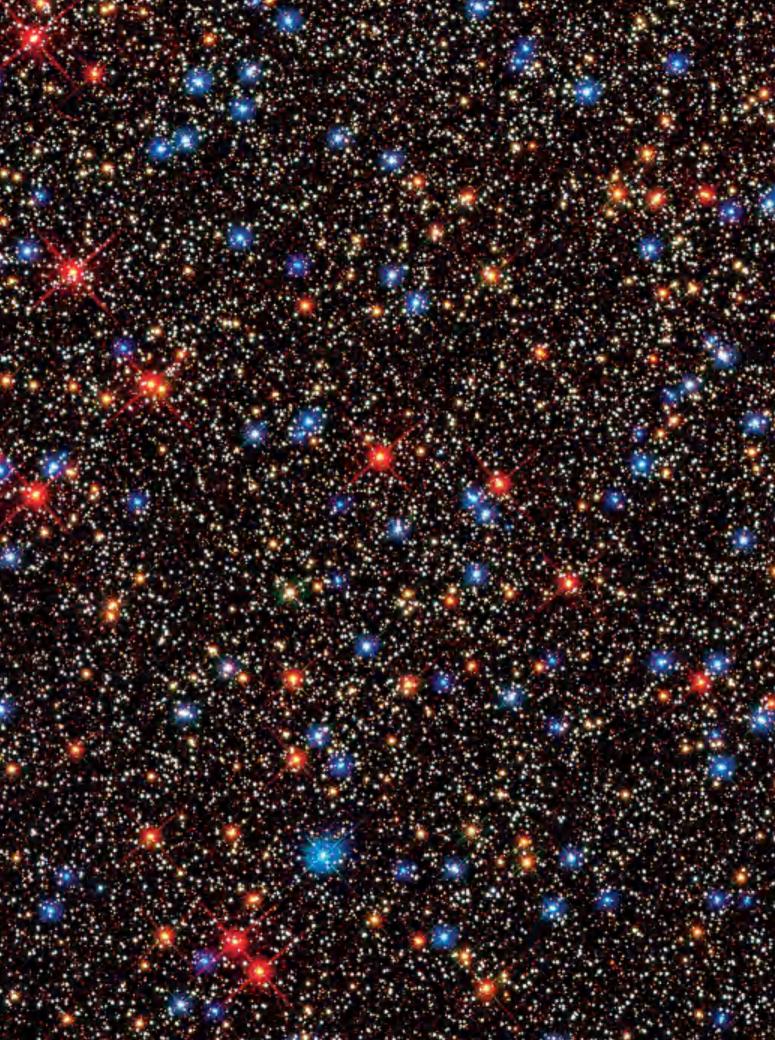
Photograph by NASA, ESA, CXC, SAO, the Hubble Heritage Team (STScl/AURA), and J. Hughes (Rutgers University)



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16,000 light years from Earth, these 100,000 stars of a massive globular cluster of more than 10 million, belonging to Omega Centauri, remain united by gravity, in a structure as old as our Milky Way Galaxy. The yellow stars, like our sun, are adult stars shining by hydrogen fusion. Toward the end of their lives, they become cooler, larger and appear orange. Even later, they become red giants. They swell to many times their size and begin to shed their gaseous envelopes. After ejecting most of their mass and exhausting much of their hydrogen fuel, the stars appear brilliant blue. These stars are desperately trying to extend their lives by fusing helium in their cores. At this stage, they emit much of their light at ultraviolet wavelengths. When the helium runs out, they reach the end of their lives. Only their cores remain, and they are called white dwarfs (the faint blue dots). Photograph by NASA, ESA, and the Hubble SM4 ERO Team A selection of some of the best images from the Indian mainstream media

# 1000 Words





Abhinav P Kocharekar,

### The Freedom of Play

Children are seen spinning tops at Wadala monorail station in Mumbai. The photographer has skilfully captured the free-spirited essence of childhood by adding various elements of play into it. The top in mid-air acts as a unique juxtaposition with the bird, soaring in the sky.



### **Concrete Jungle**

A dead tree is trimmed in Khar, Mumbai. The angle adds an intriguing effect to the frame, as the withered branches spread out to the buildings surrounding it, a possible reason for the tree dying in the first place.

**Satish Bate,** Hindustan Times



### In Celebration

People from the Muslim community participated in a procession to mark the birth anniversary of Prophet Mohammed, in Muhammad Ali Road in Mumbai. The image perfectly encapsulates the joy felt by the revellers, marked by the smiling faces and the flags waving up high.

**Farha Farooqui,** DNA

## **Recovering the Remains** On 4 January 2016, an earthquake shook the

On 4 January 2016, an earthquake shook the Northeastern states and West Bengal. In this image, shot in Noney village in Manipur, a woman retrieves whatever she can from the debris of her house. The image speaks of quiet desolation, yet of hope, to perhaps salvage a piece of what was once home. **Deepak Shijagurumayum,** The Indian Express





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The earth is a hoarder of several deep secrets... the mystery of how it has managed to retain water in a liquid state (while on other planets, it has dried up or frozen), being just one, for instance. But even while donning this cloak of secrecy, our planet reveals enough to leave us in a state of awe. **Conchita Fernandes** acquaints you with these stunning visuals.

hink about what we were taught in school about the air we breathe. I distinctly remember the teacher telling us how the earth is surrounded by a thick blanket of air called the atmosphere. Much later, I would learn that this was far from reality.

If you do a rough estimate, the earth's atmosphere extends to about 60 miles from

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its surface, a distance that most people cover almost every day commuting back and forth. Out of this, only about 4–5 miles is breathable, beyond which, the oxygen level continues to drop. It is this very thin layer of air that the seven-odd billion inhabitants of earth are dependent on.

Yet, it doesn't seem like we care enough, as we continue to pump this layer with

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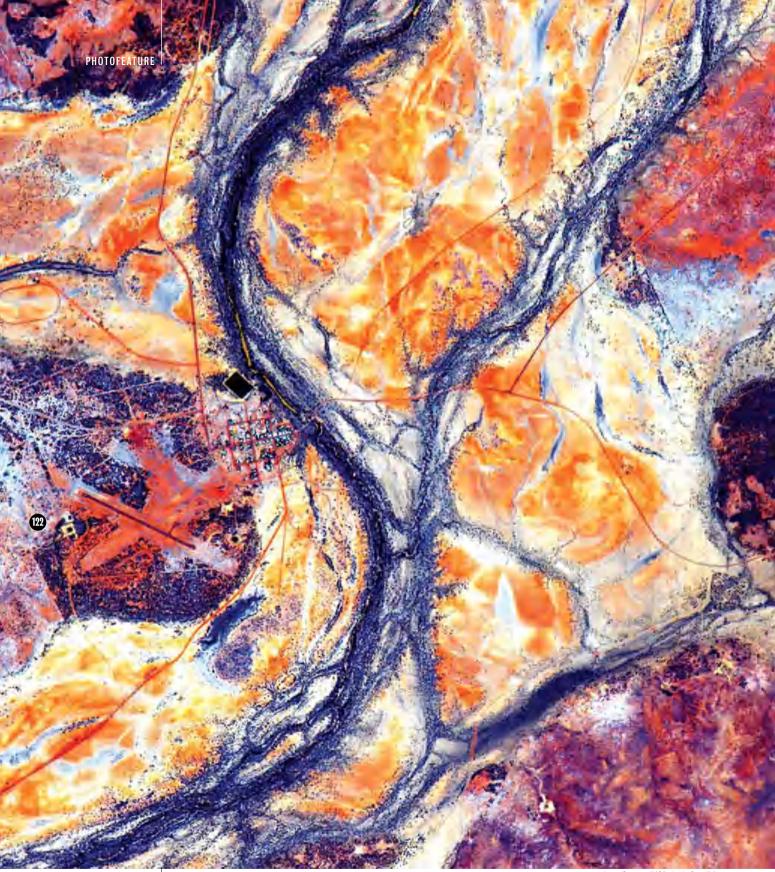


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Over time, the constant wear and tear from the tide and ocean currents in the Bahamas, have sculpted the sand and seaweed beds into a tantalising flute-like pattern, closely resembling the shape of sand dunes in the desert. The image was shot using the Enhanced Thematic Mapper plus instrument aboard the Landsat 7 satellite.







From afar, what might appear to be an amalgamation of paint and water droplets, is in fact a satellite photograph of Australia from the International Space Station.

harmful pollutants. Can we imagine the swiftness with which we are causing insurmountable damage? Despite this, the earth continues to leave us spellbound with its beauty, every single time.

Until 69 years ago, none of us were able to comprehend the magnanimity and

exquisiteness of the fascinating place we call home. But with huge strides in space and camera technology, agencies like the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA), amongst others, have been involved in continually giving us

Image Courtesy: NASA, shot by Scott Kelly

BETTER PHOTOGRAPHY | FEBRAURY 2016

splendid views of the earth from space, and various other phenomena taking place there.

Looking at these photographs, we get an idea of how minute we are in the natural order of things, and that there are far more remarkable events taking place, without us even noticing it. It reminds me of what Carl Segan mentioned in his book Pale Blue Dot: A Vision of the Human Future in Space. He said, "There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly with one another, and to persevere and cherish the pale blue dot, the only home we've ever known."



The snake-like pattern of the Green River canyon, located in eastern Utah in the US, appears dark because of the deep shadow that it lies in. But the interesting part is the yellow-tinged border surrounding the canyon, which is a result of the sun reflecting on it, thus giving the impression of how steep the canyon walls are. And if you are curious about the white line across the bottom half of the image, it's that of a passing jetliner.



## YourPictures

This month, we challenged our readers to capture the colour red in all its glory. Here is a look at the best images from the contest.

### The Prize:

Grand Prize Winner: The winning image gets the coveted Better Photography's Collector's Edition 12 Pocket Guide set, which are comprehensive guides on how to make the best pictures in every genre, ranging from sports, wildlife to festivals and colours.

To see all the nominees images for this contest, visit www.betterphotography.in



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### The Believer

Akash Shukla, Mumbai

"I made this picture during the Kumbh Mela in Nasik. Hundreds of worshippers gather to pay respects to the processions that pass. Here, I was able to photograph the lady as she caught a flower being thrown by one of the procession members. The moment reminded me of Michelangelo's The Creation of Adam, with the flower representing the link between man and God."

> Camera: Canon EOS 7D Aperture: f/4 Shutterspeed: 1/500sec ISO: 200



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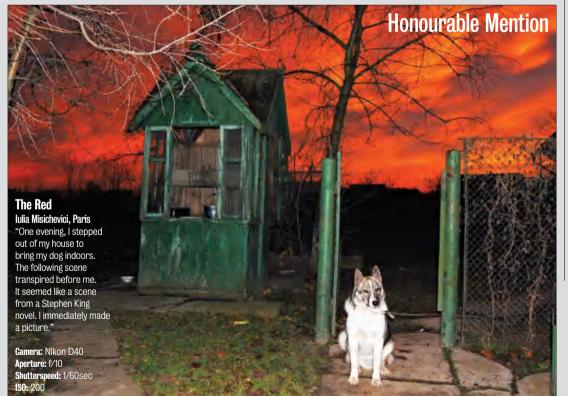




**(25**)







### • Endless Colours Sirsendu Gayen, Kolkata

"On the occasion of Makar Sankranti, thousands of pilgrims gathered at the Gangasagar mela, 155km outside of Kolkata, to take a dip in the ocean at the confluence of the Ganges river and the Bay of Bengal. As the women held up sarees to dry, I found an interesting frame being made from them and immediately made a picture."

Camera: Nikon D7000 Lens: Tokina AT-X Pro SD 12–24mm f/4 DX Aperture: f/20 Shutterspeed: 20sec ISO: 100

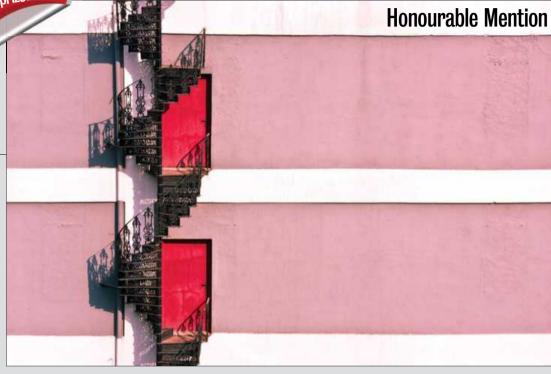
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Participate in the
'Your Pictures Contest' on
betterphotography.in/contests
to win a chance to be
featured in the magazine and
win exciting prizes!

### Marbled Sky Mayandan Bangalumu

Ruben Alexander, Bengaluru
"I see this spiral staircase
opposite my office building
every day. The play of
light and shadows creates
some of the most intricate
patterns, and the bright
red colours acted as the
perfect backdrop."

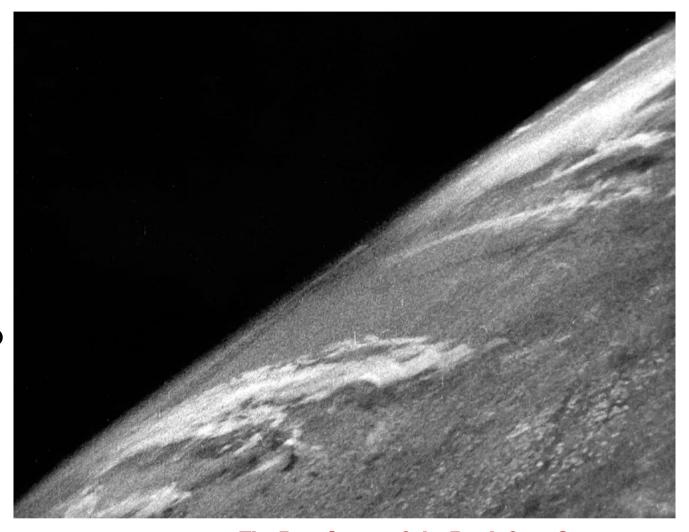
Camera: Canon EOS 450D Lens: Canon EF-S 55–250mm f/4-5.6 IS II Aperture: f/13 Shutterspeed: 1/100sec ISO: 100





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## The Story Behind the Picture



**Image Source:** White Sands Missile Range/Applied Physics Laboratory

## The First Image of the Earth from Space

hen you think of the most iconic photograph of the earth, the first image that comes to mind is *Blue Marble*, shot in 1972, by the Apollo 17 crew. But 26 years before that, a group of scientists and soldiers at the New Mexico desert, launched a 35mm camera mounted on to a German V-2 missile, 65 miles into the air. The images that came back became the first ever pictures of the earth from space. Made on 24 October, 1946, the grainy image was a result of stitching together several frames, shot every second and a half by the 35mm camera. Considering that the prime aim of the mission was military, when the picture was viewed, not many were interested in the geography of the planet, but instead, more concerned about the performance of the missile in space. But Clyde Holliday, the engineer responsible for developing the camera, understood the gravity of the accomplishment. In an interview with National Geographic, he spoke about how cameras, in the future, could be mounted on missiles to scout enemy territory and to map inaccessible areas. Later, between 1946 and 1950, more than 1000 images of the earth were photographed by V-2 missiles. However, nothing could compare to the initial elation felt by members of the crew at the desert range. In fact, one of them went on to say, "Do you realise what's going on here?"

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